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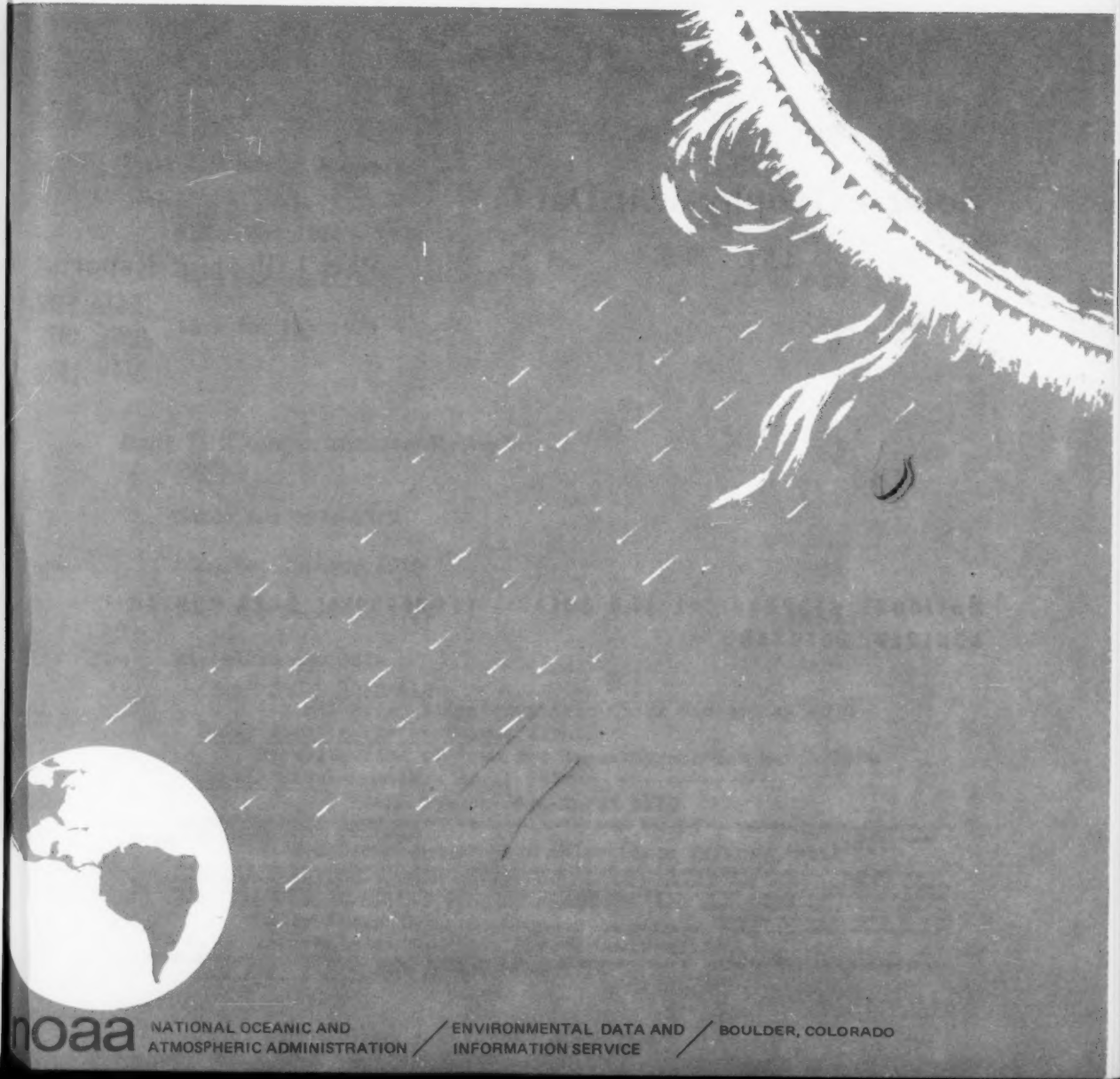
JULY 1979 Number 419 -- Part I P-A STACKS AUG 20 1979

Solar-Geophysical Data prompt reports

Data for June 1979 -- May 1979

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



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Solar - Geophysical Data

NO. 419 JULY 1979

Part I (Prompt Reports)

DATA FOR
JUNE 1979
MAY 1979

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SOLAR-GEOPHYSICAL DATA

No. 419

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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—— = no data available.
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SGD 419 Part I (Prompt)

JUNE 1979 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

JUNE 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

03 JUNE 1979 BOULDER 03/1559Z SOFLARE M4/SB N21E35 03/1433Z DURATION 15 MINUTES. TENFLARE 666 FLUX UNITS 03/1432Z DURATION 8 MINUTES.

04 JUNE 1979 BOULDER 04/1315Z SOFLARE X1/2N N19E30 04/0353Z DURATION 45 MINUTES.

05 JUNE 1979 BOULDER 05/1335Z SOFLARE X2/1N N20E16 05/0459Z DURATION 82 MINUTES. TENFLARE 3700 FLUX UNITS 05/0502Z DURATION 72 MINUTES.

06 JUNE 1979 BOULDER 06/2130Z POLCAP ABSORPTION BEGAN AT 06/1850Z 1.9 dB ABSORPTION ON 30 MHZ RIOMETER. PROTON EVENT BEGAN AT 06/1850Z 45 PROTONS/CM²/SEC/STER AT GREATER THAN 10 MEV AT 06/2035Z.

06 JUNE 1979 BOULDER 06/2207Z TENFLARE 230 FLUX UNITS 06/2105Z 16 MINUTE DURATION.

10 JUNE 1979 BOULDER 10/1336Z SOFLARE X2 NO OPTICAL 10/0804Z DURATION 109 MINUTES.

11 JUNE 1979 BOULDER 11/2051Z SOFLARE C4/2B N24W73 11/1745Z DURATION 15 MINUTES.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
152	01	31	150	170	007	N18W74	0	0	0		01	N18W74	Q	SOLQUIET MAGQUIET
						N15W39	0	0	0			N15W39	Q	
						N15E39	0	0	0			N15E39	E	
						S23W63	0	0	0			S23W63	Q	
						N12W67	0	0	0			N12W67	Q	
						N21W21	0	0	0			N21W21	Q	
						S21W14	0	0	0			S21W14	Q	
						S31W13	0	0	0			S31W13	Q	
						N20E70	1	0	0			N20E70	DA	
						S21E76	0	0	0			S21E76	Q	
						N07E82	0	0	0			N07E82	Q	
153	02	01	196	184	005	N20W87	0	0	0		02	N20W87	Q	SOLALERT 02/XX MAGQUIET
						N18W52	0	0	0			N18W52	Q	
						N13E24	3	0	0			N13E24	DA	
						N19E55	7	0	0			N19E55	CA	
						S22E69	2	0	0			S22E69	E	
						N07E66	0	0	0			N07E66	Q	
						N15W33	0	0	0			N15W33	Q	
						S12W18	0	0	0			S12W18	Q	
						S15E75	0	0	0			S15E75	Q	
154	03	02	185	205	005	N14E11	3	0	0		03	N14E11	CA	SOLALERT 03/XX MAGQUIET
						N19E44	5	1	0			N19E44	CA	
						S22E53	3	0	0			S22E53	CA	
						N06E54	0	0	0			N06E54	Q	
						S12E33	0	0	0			S12E33	Q	
						S16E66	0	0	0			S16E66	Q	
						N07E16	0	0	0			N07E16	Q	
						S21E68	0	0	0			S21E68	Q	
						N03E74	0	0	0			N03E74	Q	
155	04	03	188	220	005	N14W02	0	0	0	SOFLARE M4/SB N21E35 03/1433Z DURATION 15 MIN. TENFLARE 666 FLUX UNITS 03/1432Z DURATION 8 MIN.	04	N14W02	A	SOLALERT 04/XX MAGQUIET
						N19E30	3	1	0			N19E30	DP	
						S22E39	1	0	0			S22E39	Q	
						N08E40	0	0	0			N08E40	Q	
						S16E52	0	0	0			S16E52	Q	
						S20E52	0	0	0			S20E52	Q	
						N04E61	0	0	0			N04E61	Q	
						S09E46	0	0	0			S09E46	Q	
						S29W55	0	0	0			S29W55	Q	
156	05	04	264	234	007	N14W14	0	0	0	AN X1 FLARE OCCURRED AT 04/ 0352Z FROM REGION 1781	05	N14W14	E	SOLALERT 05/XX MAGALERT MINOR 06
						S15W20	0	0	0			S15W20	Q	
						N20E18	4	0	1			N20E18	A	
						S21E26	0	0	0			S21E26	Q	
						N08E28	1	0	0			N08E28	E	
						S14E39	0	0	0			S14E39	Q	
						S19E39	0	0	0			S19E39	Q	
						N05E49	0	0	0			N05E49	Q	
						S07E30	0	0	0			S07E30	Q	
						S28W73	0	0	0			S28W73	Q	
						N15W59	0	0	0			N15W59	Q	
						N12E10	0	0	0			N12E10	Q	
						N18E75	0	0	0			N18E75	Q	
157	06	05	266	224	006	N14W26	0	0	0	AN X2/1N FLARE OCCURRED AT 05/ 0508Z IN REGION 1781. 10 CM RADIO BURST OF 3700 FLUX UNITS WAS OBSERVED.	06	N14W26	E	SOLALERT 06/XX MAGALERT 06/08
						S15W34	0	0	0			S15W34	Q	
						N20E04	6	1	1			N20E04	A	
						S20E12	1	0	0			S20E12	Q	
						N09E14	1	0	0			N09E14	Q	
						S14E25	0	0	0			S14E25	Q	
						S20E25	1	0	0			S20E25	Q	
						N06E35	0	0	0			N06E35	Q	
						S07E15	0	0	0			S07E15	Q	
						N15W74	1	0	0			N15W74	E	
						N10W01	0	0	0			N10W01	Q	
						N18E61	0	0	0			N18E61	Q	
						S34E22	0	0	0			S34E22	Q	
158	07	06	309	229	018	N13W41	0	0	0	A TENFLARE OCCURRED AT 06/2105Z WITH 230 FLUX UNITS, 16 MINUTE DURATION. A PCA BEGAN AT 06/ 1850Z WITH 1.9 dB ABSORPTION ON 30 MHZ RIOMETER. A PROTON EVENT BEGAN AT 06/1850Z WITH 550 PROTONS/ CM²/SEC/STER AT GREATER THAN 10 MEV AT 06/2400Z.	07	N13W41	Q	SOLALERT 07/XX MAGALERT 07/09
						S17W46	0	0	0			S17W46	Q	
						N21W08	4	0	0			N21W08	A	
						S20E02	2	0	0			S20E02	Q	
						N08E03	1	0	0			N08E03	Q	
						S14E14	0	0	0			S14E14	Q	
						S20E14	1	0	0			S20E14	Q	
						N05E23	0	0	0			N05E23	Q	
						S08E02	0	0	0			S08E02	Q	
						N13W85	0	0	0			N13W85	Q	
						N10W14	2	0	0			N10W14	E	
						N18E49	0	0	0			N18E49	Q	
						S33E10	0	0	0			S33E10	Q	
						N15E66	1	1	0			N15E66	E	
						S17E71	0	0	0			S17E71	Q	
						N18E25	0	0	0			N18E25	Q	

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SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	Flares: Total	Flares: M	Flares: X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
159	08	07	300	231	022	N13W53	1	0	0	PROTON FLUXES AT	08	N13W53	Q	SOLALERT 08/XX MAGALERT 08/XX
						S17W60	2	0	0	GREATER THAN 10		S17W60	Q	
						N20W21	5	0	0	MEV AT 45 PAR-		N20W21	A	
						S22W11	1	0	0	TICLES/CM²/SEC/		S22W11	Q	
						N08W10	1	0	0	STER AND DROPPING		N08W10	Q	
						S14E02	0	0	0	POLCAP ABSORPTION		S14E02	Q	
						S20W00	0	0	0	AT 1.3 dB AT		S20W00	Q	
						N05E10	0	0	0	08/0100Z		N05E10	Q	
						S09W12	0	0	0			S09W12	Q	
						N09W28	0	0	0			N09W28	Q	
						N18E35	0	0	0			N18E35	Q	
						S34W04	0	0	0			S34W04	Q	
						N16E57	2	0	0			N16E57	E	
						S17E61	4	0	0			S17E61	E	
						N18E13	0	0	0			N18E13	Q	
160	09	08	271	236	012	N14W67	0	0	0		09	N14W67	Q	SOLALERT 09/XX MAGNIL
						S16W73	0	0	0			S15W73	Q	
						N20W35	4	0	0			N20W35	DA	
						S21W25	1	0	0			S21W25	Q	
						N08W23	0	0	0			N08W23	Q	
						S14W12	0	0	0			S14W12	Q	
						S20W13	2	0	0			S20W13	Q	
						N05W04	1	0	0			N05W04	Q	
						N10W41	0	0	0			N10W41	Q	
						N17E21	0	0	0			N17E21	Q	
						S34W18	0	0	0			S34W18	Q	
						N16E43	3	0	0			N16E43	DA	
						S17E49	1	0	0			S17E49	DA	
161	10	09	309	245	012	N12W81	0	0	0		10	N12W81	Q	SOLALERT 10 MAGQUIET
						S14W82	0	0	0			S14W82	Q	
						N21W47	7	1	0			N21W47	A	
						S22W38	0	0	0			S22W38	Q	
						N07W37	0	0	0			N07W37	Q	
						S14W26	0	0	0			S14W26	Q	
						S22W25	2	0	0			S22W25	E	
						N04W17	0	0	0			N04W17	Q	
						N18E08	0	0	0			N18E08	Q	
						S36W32	0	0	0			S36W32	Q	
						N17W29	3	0	0			N17W29	E	
						S16E37	0	0	0			S16E37	Q	
						N17E16	0	0	0			N17E16	Q	
						N05E04	0	0	0			N05E04	Q	
						N07W75	0	0	0			N07W75	Q	
						S09W38	0	0	0			S09W38	Q	
						N18W13	0	0	0			N18W13	Q	
						N10W54	0	0	0			N10W54	Q	
162	11	10	339	233	014	N20W60	1	0	0	X2 X-RAY FLARE	11	N20W60	CA	SOLALERT 11/XX MAGQUIET
						S22W50	1	0	0	10/0804Z DURATION		S22W50	Q	
						N07W50	0	0	0	109 MINUTES. NO		N07W50	Q	
						S14W39	1	0	0	STRONG OPTICAL		S14W39	Q	
						S21W39	1	0	0	CORRELATION		S21W39	CA	
						N04W30	1	0	0	ALTHOUGH SF FLARE		N04W30	Q	
						N18W04	0	0	0	SEEN AT N20W48 AT		N18W04	Q	
						S34W46	0	0	0	10/0825Z.		S34W46	Q	
						N17E16	1	0	0			N17E16	CA	
						S17E23	1	0	0			S17E23	CA	
						N16E02	0	0	0			N16E02	Q	
						N06W16	1	0	0			N06W16	Q	
						S13W11	0	0	0			S13W11	Q	
						N23E59	1	0	0			N23E59	Q	
163	12	11	202	221	011	N20W75	2	0	0	BOULDER SOFLARE	12	N20W75	E	SOLALERT 12/XX MAGQUIET
						S22W64	0	0	0	C4/2B N24W73 AT		S22W64	Q	
						N08W63	0	0	0	11/1745Z DURATION		N08W63	Q	
						S14W52	0	0	0	15 MINUTES.		S14W52	Q	
						S20W51	0	0	0			S20W51	E	
						N04W42	0	0	0			N04W42	Q	
						N18W17	0	0	0			N18W17	Q	
						N18E04	0	0	0			N18E04	E	
						S17E10	0	0	0			S17E10	Q	
						S12W26	0	0	0			S12W26	Q	
						N24W44	1	0	0			N24W44	Q	
						S15E69	0	0	0			S15E69	Q	
164	13	12	300	201	006	N21W89	2	0	0		13	N21W89	E	SOLALERT 13/XX MAGQUIET
						S22W78	0	0	0			S22W78	Q	
						N08W76	0	0	0			N08W76	Q	
						S15W66	0	0	0			S15W66	Q	
						S20W65	0	0	0			S20W65	E	
						N04W56	0	0	0			N04W56	Q	
						N20W28	0	0	0			N20W28	Q	
						N17W08	1	0	0			N17W08	E	
						S16W00	1	0	0			S16W00	Q	
						N18W47	0	0	0			N18W47	Q	
						S13W38	0	0	0			S13W38	Q	
						N23E32	0	0	0			N23E32	Q	
						S15E54	0	0	0			S15E54	Q	
						S10W02	0	0	0			S10W02	Q	
						S22W01	0	0	0			S22W01	Q	
						N09E16	0	0	0			N09E16	Q	
						N22E64	0	0	0			N22E64	Q	

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Message serial number	Date of issue	Date of obser-vation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
165	14	13	249	195	007	N07W90	0	0	0		14	N07W90	Q	SOLNIL MAGQUIET
						S15W79	0	0	0			S15W79	Q	
						S22W80	1	0	0			S22W80	Q	
						N04W70	0	0	0			N04W70	Q	
						N19W43	1	0	0			N19W43	Q	
						N18W23	2	0	0			N18W23	E	
						S17W14	3	0	0			S17W14	E	
						S15W52	0	0	0			S15W52	Q	
						N25E19	1	0	0			N25E19	Q	
						S15E41	0	0	0			S15E41	Q	
						S12W15	1	0	0			S12W15	Q	
						N24E49	3	0	0			N24E49	Q	
						S15W62	0	0	0			S15W62	Q	
						N26E61	0	0	0			N26E61	Q	
						N14E63	0	0	0			N14E63	Q	
166	15	14	200	177	010	N04W84	0	0	0		15	N04W84	Q	SOLQUIET MAGQUIET
						N18W57	0	0	0			N18W57	Q	
						N17W36	3	0	0			N17W36	E	
						S17W27	3	0	0			S17W27	E	
						N24E03	1	0	0			N24E03	CE	
						S12W26	1	0	0			S12W26	CE	
						N23E38	1	0	0			N23E38	Q	
						N26E52	0	0	0			N26E52	Q	
						N13E55	0	0	0			N13E55	Q	
						N15E67	0	0	0			N15E67	Q	
167	16	15	166	171	008	N17W69	0	0	0		16	N17W69	Q	SOLQUIET MAGQUIET
						N17W48	4	0	0			N17W48	E	
						S18W40	0	0	0			S18W40	E	
						S13W47	0	0	0			S13W47	Q	
						N23E23	1	0	0			N23E23	CE	
						N27E44	0	0	0			N27E44	Q	
						N15E53	0	0	0			N15E53	Q	
						N06W07	0	0	0			N06W07	Q	
						S17E38	0	0	0			S17E38	Q	
168	17	16	205	161	018	N18W85	0	0	0		17	N18W85	Q	SOLQUIET MAGQUIET
						N17W64	2	0	0			N17W64	E	
						S17W52	2	0	0			S17W52	E	
						S13W60	2	0	0			S13W60	CE	
						N22E09	3	0	0			N22E09	E	
						S26E31	1	0	0			S26E31	Q	
						N13E41	1	0	0			N13E41	Q	
						N07W19	0	0	0			N07W19	Q	
						S28W14	0	0	0			S28W14	Q	
						N09E11	0	0	0			N09E11	Q	
169	18	17	180	152	012	N18W74	0	0	0		18	N18W74	Q	SOLQUIET MAGALERT MINOR 19
						S15W65	1	0	0			S15W65	E	
						S15W74	2	0	0			S15W74	Q	
						N20W04	0	0	0			N20W04	E	
						N25E18	0	0	0			N25E18	Q	
						N13E27	0	0	0			N13E27	Q	
						N08W33	1	0	0			N08W33	E	
						N08W02	0	0	0			N08W02	E	
						N18E71	0	0	0			N18E71	Q	
170	19	18	158	147	008	N17W85	0	0	0		19	N17W85	Q	SOLQUIET MAGALERT MINOR 19
						S17W79	2	0	0			S17W79	E	
						N23W18	1	1	0			N23W18	E	
						N26E07	0	0	0			N26E07	Q	
						N14E13	0	0	0			N14E13	Q	
						N07W46	0	0	0			N07W46	Q	
						N07W15	1	0	0			N07W15	Q	
						N19E55	0	0	0			N19E55	Q	
						N12W00	0	0	0			N12W00	Q	
						S07E65	1	0	0			S07E65	E	
171	20	19	150	142	007	N23W31	1	0	0		20	N23W31	E	SOLQUIET MAGNIL
						N28W09	0	0	0			N28W09	E	
						N13W00	0	0	0			N13W00	Q	
						N08W59	0	0	0			N08W59	Q	
						N09W30	0	0	0			N09W30	Q	
						N20E42	0	0	0			N20E42	Q	
						S07E49	5	0	0			S07E49	Q	
						S28E64	0	0	0			S28E64	Q	
						S20E37	1	0	0			S20E37	Q	
						S20E78	0	0	0			S20E78	Q	
172	21	20	214	145	009	N22W44	0	0	0		21	N22W44	Q	SOLQUIET MAGQUIET
						N26W21	0	0	0			N26W21	Q	
						N13W12	0	0	0			N13W12	Q	
						N07W74	0	0	0			N07W74	Q	
						N08W44	2	0	0			N08W44	Q	
						N20E29	0	0	0			N20E29	Q	
						S07E41	1	0	0			S07E41	Q	
						S28E52	0	0	0			S28E52	Q	
						S23E20	2	0	0			S23E20	Q	
						S22E62	0	0	0			S22E62	Q	
						S12E86	0	0	0			S12E86	Q	

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173	22	21	164	143	011	N22W56	0	0	0		22	N22W56	CE	SOLQUIET MAGALERT 22/23
						N27W34	0	0	0			N27W34	DE	
						N14W25	0	0	0			N14W25	Q	
						N20E14	0	0	0			N20E14	DE	
						S07E28	1	0	0			S07E28	CE	
						S28E40	1	0	0			S28E40	DA	
						S23E09	0	0	0			S23E09	CE	
						S23E49	0	0	0			S23E49	Q	
						S12E68	0	0	0			S12E68	Q	
						S19E15	0	0	0			S19E15	Q	
174	23	22	133	137	017	N23W75	1	0	0		23	N23W75	E	SOLQUIET MAGALERT 23
						N16W38	0	0	0			N16W38	Q	
						N19W00	0	0	0			N19W00	DE	
						S06E14	1	0	0			S06E14	CE	
						S28E28	0	0	0			S28E28	E	
						S23W05	0	0	0			S23W05	E	
						S23E36	0	0	0			S23E36	Q	
						S14E54	0	0	0			S14E54	Q	
						S20W07	1	0	0			S20W07	E	
						N26E67	0	0	0			N26E67	Q	
						N27W48	0	0	0			N27W48	DE	
						S19E02	1	0	0			S19E02	Q	
175	24	23	136	135	018	N22W88	0	0	0		24	N22W88	Q	SOLQUIET MAGNIL
						N19W15	0	0	0			N19W15	Q	
						S06W00	0	0	0			S06W00	E	
						S28E15	1	0	0			S28E15	E	
						S23W18	1	0	0			S23W18	E	
						S12E41	2	0	0			S12E41	E	
						S19W20	1	0	0			S19W20	E	
						N25E54	0	0	0			N25E54	Q	
						N12W28	0	0	0			N12W28	E	
176	25	24	133	137	012	N18W27	0	0	0		25	N18W27	Q	SOLQUIET MAGQUIET
						S06W13	4	0	0			S06W13	E	
						S29E03	0	0	0			S29E03	Q	
						S23W30	2	0	0			S23W30	Q	
						S12E29	0	0	0			S12E29	Q	
						S20W31	0	0	0			S20W31	Q	
						N24E41	0	0	0			N24E41	Q	
						S16W02	0	0	0			S16W02	Q	
						N13E75	1	0	0			N13E75	E	
177	26	25	159	143	010	N18W40	1	0	0		26	N18W40	Q	SOLQUIET MAGQUIET
						S08W26	0	0	0			S08W26	Q	
						S24W43	2	0	0			S24W43	Q	
						S12E15	1	0	0			S12E15	Q	
						N26E27	0	0	0			N26E27	Q	
						N11W54	0	0	0			N11W54	Q	
						S15W16	0	0	0			S15W16	Q	
						N16E66	0	0	0			N16E66	Q	
						N23W13	0	0	0			N23W13	Q	
						S19E30	0	0	0			S19E30	Q	
178	27	26	193	149	014	N18W54	1	0	0		27	N18W54	Q	SOLQUIET MAGQUIET
						S07W43	0	0	0			S07W43	Q	
						S23W59	0	0	0			S23W59	Q	
						S12E02	0	0	0			S12E02	Q	
						N26E15	0	0	0			N26E15	Q	
						N11W69	4	0	0			N11W69	Q	
						S15W32	0	0	0			S15W32	Q	
						N14E54	2	0	0			N14E54	Q	
						N21W27	0	0	0			N21W27	Q	
						S18E20	0	0	0			S18E20	Q	
						S28W71	0	0	0			S28W71	Q	
						N18E58	0	0	0			N18E58	Q	
						S19E51	0	0	0			S19E51	Q	
179	28	27	190	153	009	N16W67	0	0	0		28	N16W67	Q	SOLQUIET MAGQUIET
						S07W56	0	0	0			S07W56	Q	
						S24W73	2	0	0			S24W73	Q	
						S12W12	0	0	0			S12W12	Q	
						N26E02	0	0	0			N26E02	Q	
						N11W86	0	0	0			N11W86	Q	
						N14E39	0	0	0			N14E39	Q	
						S17E07	0	0	0			S17E07	Q	
						S26W86	1	0	0			S26W86	Q	
						N18E45	0	0	0			N18E45	Q	
						N18E63	1	0	0			N18E63	Q	
						N15W12	0	0	0			N15W12	Q	
						S07W23	0	0	0			S07W23	Q	
						N05E81	0	0	0			N05E81	Q	

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180	29	28	165	154	007	S25W86	0	0	0		29	S25W86	Q	SOLQUIET MAGQUIET
						S11W25	1	0	0			S11W25	Q	
						N26W11	0	0	0			N26W11	Q	
						N15E27	0	0	0			N15E27	Q	
						S17W06	0	0	0			S17W06	Q	
						N19E30	2	0	0			N19E30	E	
						S08W38	0	0	0			S08W38	Q	
						N05E66	0	0	0			N05E66	Q	
						N20W39	0	0	0			N20W39	Q	
						S18W13	0	0	0			S18W13	Q	
						N18E69	0	0	0			N18E69	E	
						S22E69	0	0	0			S22E69	E	
181	30	29	174	161	003	S12W37	0	0	0		30	S12W37	Q	SOLQUIET MAGQUIET
						N15E14	0	0	0			N15E14	Q	
						N18E17	1	0	0			N18E17	Q	
						S08W53	0	0	0			S08W53	Q	
						N05E51	0	0	0			N05E51	Q	
						N19W53	0	0	0			N19W53	E	
						N19E55	2	0	0			N19E55	DA	
						S22E56	0	0	0			S22E56	E	
						N10W69	0	0	0			N10W69	Q	
						N05E78	0	0	0			N05E78	Q	
						S18E02	0	0	0			S18E02	Q	
182	01	30	182	173	010	S11W52	0	0	0		01	S11W52	Q	SOLQUIET MAGQUIET
						N14E01	0	0	0			N14E01	Q	
						N18E04	0	0	0			N18E04	E	
						S07W67	0	0	0			S07W67	Q	
						N05E37	1	0	0			N05E37	E	
						N19W65	0	0	0			N19W65	E	
						N05E65	0	0	0			N05E65	Q	
						S19W12	0	0	0			S19W12	Q	
						S28E65	1	0	0			S28E65	Q	
						N19E41	2	0	0			N19E41	DA	
						S21E43	0	0	0			S21E43	Q	
						N09W81	0	0	0			N09W81	Q	
						S13E63	1	0	0			S13E63	E	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1978 FINAL						1979 PROVISIONAL					
DAY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	64	42	136	96	109	110	158	116	116	131	108	121
2	61	48	167	112	122	110	158	127	135	134	106	152
3	51	38	159	105	125	117	191	148	141	135	103	161
4	48	62	162	100	129	115	157	123	142	138	112	178
5	54	74	177	73	121	104	146	134	135	109	113	207
6	63	66	177	74	108	122	173	146	144	91	122	226
7	84	58	147	95	112	138	163	144	146	77	148	222
8	105	62	120	103	118	148	172	142	143	69	165	220
9	108	64	109	121	108	152	165	139	146	61	162	231
10	115	67	99	149	120	144	163	137	140	87	145	205
11	127	58	84	158	118	170	157	137	156	105	148	186
12	111	71	72	158	99	188	159	138	170	107	158	199
13	114	93	92	156	90	165	159	152	169	113	163	172
14	109	93	113	170	78	150	162	163	159	116	203	149
15	102	77	133	166	59	140	178	161	155	117	207	127
16	110	52	143	163	77	143	164	159	133	119	187	133
17	98	50	136	143	92	146	164	160	142	107	184	122
18	84	50	156	135	93	132	146	162	142	98	148	126
19	77	42	159	154	85	95	138	166	138	79	109	110
20	76	38	163	151	76	84	177	169	120	68	107	111
21	77	30	171	144	68	68	181	171	134	68	114	124
22	48	36	148	125	77	63	178	155	143	79	121	108
23	38	45	156	116	55	59	188	127	139	79	117	96
24	38	48	163	104	61	65	209	99	118	80	119	90
25	30	55	168	96	85	81	209	88	114	85	124	120
26	13	45	152	102	101	93	173	108	114	118	123	132
27	22	57	142	115	118	110	162	97	117	125	118	112
28	31	57	126	117	118	122	157	95	114	132	110	128
29	48	59	122	137	111	135	153		110	132	113	124
30	39	72	94	128	103	159	149		127	120	96	154
31	36	100		111		177	130		147		120	
MEAN	78.4	58.1	138.2	125.1	97.9	122.7	165.8	138.0	137.0	102.8	134.6	150.5

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1978						1979					
DAY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	142.9	106.0	159.8	139.3	152.0	166.6	194.1*	185.8	168.5	202.6*	180.4	189.5
2	127.6	106.0	171.7*	137.8	159.0	167.6	200.1	185.6	170.7	203.4	179.2	206.6*
3	116.5	109.6	167.6	131.7	169.9	164.2	203.5*	187.4*	173.3	194.2	164.3	216.1*
4	117.4	112.3	174.4*	132.0*	177.4	165.3	192.7*	187.7	181.4	183.5	176.0	228.8*
5	118.9	117.6	179.4	138.7*	181.2	169.5	194.9	197.4	180.1*	179.3	169.6	230.2
6	119.3*	122.6	181.1	137.4	172.2*	164.5	190.9	206.5	182.4	176.3	171.1*	236.1
7	128.5	123.2	177.5	141.6	174.6	178.5*	186.2	203.4	183.1*	166.7	178.0	238.1
8	135.9	136.6	167.1	150.1	168.0*	189.9	200.1	207.2*	178.9	169.0*	182.4*	242.7
9	147.1*	128.1*	157.6*	155.8	164.9*	189.6	192.6	198.7	181.4	169.6	181.3	247.4*
10	156.0*	127.5	149.8	162.3	166.3	204.7	186.2	198.4*	180.6	173.0	174.7	239.9
11	163.2*	121.7	141.5	171.6*	163.7	210.5	179.5	202.2*	181.7*	170.0*	178.6	229.6
12	174.2*	124.5	138.5	177.2	150.4	217.3	174.5	195.4	188.7	174.5	184.2	208.3
13	165.5	134.9	138.0	178.5	145.3	210.6*	193.9	195.4	186.3	175.8	186.6	193.7
14	163.1	132.7	143.5*	180.1	136.3	197.0	200.0*	204.2*	189.4	170.9	182.0	185.7
15	169.5	130.0*	152.6	182.0	133.8	192.7	192.1*	205.0*	181.3	168.1	181.9	176.0
16	163.4	123.6	161.5	176.7*	128.8	180.5	189.9*	209.2	183.5*	171.7	176.4	167.5
17	159.5	119.3*	161.8	171.5	128.1	177.7	175.7	213.1	177.7	168.0	187.7	158.1
18	154.1*	115.6	169.3*	169.4	127.4	161.5	177.6	237.7	188.6*	158.7	171.3*	152.6
19	148.6	111.6	168.8*	170.4	128.9	152.9	187.9	237.8	177.6	159.4	161.5	146.2
20	142.9*	107.5	168.6	171.0	134.9	138.1	197.2	230.1*	184.1	156.1	155.6	151.5
21	140.2	104.8	172.5	166.9*	126.0	132.1*	210.3	225.1	182.2	161.5	155.7	148.9
22	127.0	106.0	171.5*	161.4	127.1	132.7	226.9	223.3	181.1	158.7*	156.5*	141.1
23	123.4*	104.1	165.5*	161.4	121.9	133.4	225.1	196.0	188.5	162.3	156.0	139.0
24	118.5	105.4	158.9	156.9	123.5	135.2*	208.5	182.8	186.3	161.9	159.2*	141.2
25	113.7	104.2	157.2	156.1	124.7*	138.0	206.1	167.5	188.2	172.5	153.3*	147.8
26	112.2	100.7	148.5	154.4	132.7	144.2	192.9	166.0	200.2	182.0	149.1	153.7
27	110.8	107.3*	146.2*	150.7	144.4*	148.7*	205.4	162.7	187.9	195.1*	149.4	158.5
28	109.9	107.7*	147.8	148.4*	154.1	164.1	209.6	163.6	188.6	192.1*	149.2	159.1
29	109.2	116.2	148.1	149.8	162.2	166.2	209.3		191.4	185.7	150.2	166.9
30	109.2	124.1	142.6	146.5	167.8	181.7	194.1*		185.6	185.2*	158.4	176.7*
31	108.8	133.9*		144.0		195.1	193.7		201.4*		174.9	
MEAN	135.4	116.9	159.6	157.1	148.2	170.0	196.5	199.1	184.0	175.0	168.9	186.0

* adjusted for burst
A = interpolated data point

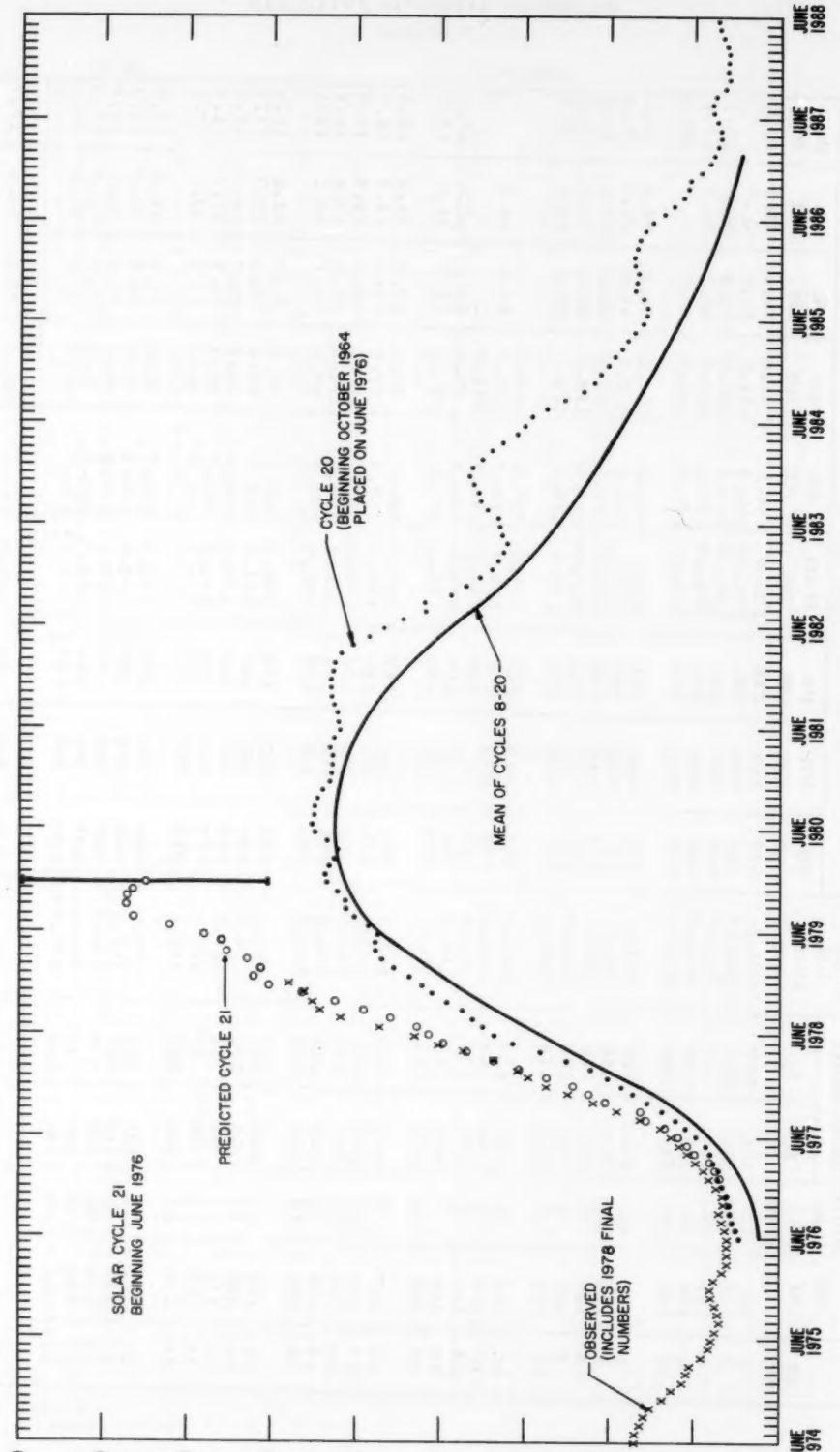
DAILY SOLAR INDICES

JUNE 1979

JUN 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	152	21	121	105	184.2	620	419	236	189.5	194.1	98.4	74.4	33.0	25.9
2	153	22	152	137	201.0*	622	434	254	206.8*	206.3	109.5	81.4	41.7	
3	154	23	161	162	210.0*	610	421	268	216.1*	217.9	112.6	81.8	39.2	32.2
4	155	24	178	168	222.4*	604	409	271	228.8*	232.4	122.9	85.7	34.5	17.4
5	156	25	207	189	223.5	598	422	254	230.2	234.9	123.9	87.3		34.1
6	157	26	226	207	231.2	614	416	261	238.1	241.2	121.6	81.0	38.1	13.4
7	158	27	222	204	231.2	617	414	266	238.1	238.2	122.7	85.6	45.7	24.4
8	159	1	220	216	235.6	610	415	268	242.7	244.6	128.2	84.7	47.1	33.2
9	160	2	231	202	240.0*	610	423	276	247.4*	241.3	128.7	86.4	41.4	22.7
10	161	3	205	174	232.7	603	428	274	239.9	239.1	122.7	85.8	46.1	22.9
11	162	4	186	174	222.7	605	415	263	229.6	227.6	115.9			
12	163	5	199	160	202.0	607	413	250	208.3	219.3	105.7	80.5	44 6	
13	164	6	172	132	187.7	608		229	193.7	190.9	101.5			
14	165	7	149	111	179.9	596	404	215	185.7	190.2	93.8	82.3	40.3	17.7
15	166	8	127	102	170.5	579	376	199	176.0	174.6	91.1	73.9	36.6	13.5
16	167	9	103	112	162.3	583	386	189	167.5	166.5	87.1	69.9	33.8	13.3
17	168	10	122	124	153.2	574	371	186	158.1	159.3	87.6	69.4	33.7	14.6
18	169	11	126	115	147.7	580	363	182	152.6	157.0	87.1	70.8	33.9	11.6
19	170	12	110	113	141.5	588	366	170	146.2	145.0	79.4	67.8	33.4	14.7
20	171	13	111	109	146.7	596	368	173	151.5	157.0	87.4	74.7	32.2	13.1
21	172	14	124	108	144.1	591	367	170	148.9	147.5	85.9	71.3	33.6	12.4
22	173	15	108	101	136.6	585	351	165	141.1	142.8	82.8	74.1	32.9	13.5
23	174	16	96	93	134.6	568	351	162	139.0	140.0	82.8	66.7	28.6	11.9
24	175	17	90	87	136.7	577	658	164	141.2	145.2	85.4	73.3	31.2	11.9
25	176	18	120	107	143.1	583	368	167	147.8	150.0	86.3	73.0	33.1	13.0
26	177	19	132	122	148.6	584	378	172	153.7	149.7	84.6	74.7	32.9	13.5
27	178	20	112	111	153.3	589	378	180	158.5	154.3	91.9	76.7	34.2	13.8
28	179	21	128	108	153.9	589	372	174	159.1	164.2	92.0	72.2	32.4	14.6
29	180	22	124	114	161.4	595	384	184	166.9	166.6	95.0	74.7	31.8	12.8
30	181	23	154	124	170.9*	589	387	202	176.7*	170.9	105.0	80.8	36.6	19.2
MEAN			150.5	136.4	180.3	596	392	214	186.0	187.0	100.7	77.2	36.4	17.7

* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill are due to equipment problems.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.4	111.0	113.3	116.7
1979	121.6	126.0	130.3	133.2	135.9	140.3	144.6	147.5	149.6	150.8	151.2*	150.7
	(3)	(5)	(8)	(13)	(17)	(19)	(22)	(24)	(25)	(26)	(28)	(29)
1980	149.4	148.0	147.2	147.5	146.8	143.7	140.2	137.4	135.7	134.7	133.4	132.1
	(31)	(31)	(30)	(30)	(32)	(35)	(38)	(40)	(40)	(41)	(43)	(46)
1981	132.0	131.5	129.1	126.2	123.6	121.1	119.8	119.4	118.5	117.2	114.8	111.7
	(48)	(48)	(46)	(45)	(46)	(45)	(45)	(43)	(43)	(43)	(42)	(40)
1982	108.7	105.6	103.2	101.3	99.2	96.9	93.3	88.8	84.8	80.3	77.0	73.5
	(37)	(36)	(36)	(34)	(32)	(29)	(28)	(26)	(24)	(21)	(20)	(20)
1983	69.4	66.5	64.5	62.3	60.1	57.7	55.6	53.8	52.1	50.9	50.0	49.2
	(20)	(20)	(21)	(22)	(22)	(23)	(24)	(26)	(27)	(29)	(30)	(30)
1984	48.0	46.1	43.4	40.1	37.6	36.5	35.5	34.0	32.4	31.2	30.0	28.4
	(31)	(30)	(29)	(29)	(29)	(31)	(31)	(31)	(30)	(29)	(27)	(27)
1985	27.3	26.5	25.6	25.1	24.5	23.5	22.7	21.9	21.2	20.3	19.4	18.7
	(27)	(26)	(26)	(26)	(26)	(24)	(23)	(22)	(22)	(23)	(24)	(24)
1986	18.3	17.5	16.7	15.7	14.5	13.3	12.3	11.7	11.5	11.3	11.2	11.2
	(24)	(24)	(23)	(23)	(22)	(20)	(19)	(19)	(17)	(16)	(15)	(13)
1987	11.6	12.2	13.1	14.1	15.1	16.2	17.3					
	(12)	(11)	(11)	(11)	(13)	(13)	(14)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 152 ± 27.

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MONT	01	0808	0810	0812	N17	E69	.947		6.5	4	SN		C	0810	80		E
MONT	01	1008	1009	1012	N17	E68	.942		6.5	4	SF		C	1009	50		E
BIGB	01	1431	1432	1436	S17	E75	.963		7.2	5	SN	3	C	1432	30		
MCMA	01	1441	1450	1515D	N15	E33	.614	16046	4.1	34D	SF		C	1450	40	.5	E
MCMA	01	1455	1508	1530D	N15	E65	.922	16051	6.5	35D	SN		C	1508	50	1.2	E
BIGB	01	1547	1550	1601	S19	E75	.963		7.3	14	SN	3	C	1550	60		
MCMA	01	1548	1550	1600	S21	E76	.968	16052	7.4	12	1F		C	1550	50	2.4	E
MCMA	01	1602	1606	1630D	N15	E65	.922	16051	6.5	28D	SN		C	1606	60	1.5	E
BIGB	01	1603	1604	1621	N18	E64	.919	16058	6.5	18	1B	3	C	1604	100	2.4	
MCMA	01	1644		1651D	S27	E66	.919	16052	6.6	7D	1N		P	1651	70	2.1	E
BIGB	01	1645	1651	1734	S25	E70	.940		6.9	49	SB	3	C	1651	50		
BIGB	01	1647	1658	1715	N36	E32	.767		4.1	28	SN	3	C	1658	80	1.0	
PALE	01	1650	1658	1714	S21	E70	.939	16052	7.0	24	1B	3	C		120		DE
PALE	01	1651	1716	1805	N19	E64	.921		6.5	74	SB	3	C		24		F
PALE	01	1654	1657	1721	N14	E30	.572		4.0	27	SB	3	C		125		F
PALE	01	1715	1715	1754	S21	E70	.939		7.0	39	SN	3	C		31		F
BIGB	01	1716	1726	1749	N18	E60	.892		6.2	33	SB	3	C	1726	30	.6	
BIGB	01	1751	1754	1800	N18	E68	.943		6.8	9	SN	3	C	1754	80		
BIGB	01	1815	1820	1831	N17	E66	.930		6.7	16	SP	3	C	1820	20		
PALE	01	1817	1819	1900	N19	E64	.921		6.6	43	SB	3	C		50		F
MCMA	01	1835E		1838D	N20	E60	.896	16051	6.3	3D	SF		P	1835	15	.4	D
MCMA	01	1931E		1931D	N18	E60	.892	16051	6.3		SN		P	1931	30	.6	E
PALE	01	1945	1945	1951	N14	E28	.548		3.9	6	SN	3	C		49		F
PALE	01	1949	1949	2104D	N19	E63	.915		6.6	75D	SN	3	C		58		F
HOLL	01	2113	2116	2120	N21	E59	.891		6.3	7	SN	2	C		39		
BIGB	01	2342	2344	2344E	N12	E67	.931		7.0	2D	SN	2	P	2344	20		
ISTA	02	0820E		0825	N23	E52	.843		6.2	5D	SB						E
MONT	02	0853	0856	0908	S18	E66	.913		7.3	15	SN		C	0856	70		D
ATHN	02	0853	0856	0906	S10	E60	.864		6.9	13	SB	3	C		48		DE
MONT	02	0909	0911	0921	S24	E68	.929		7.5	12	SN		C	0911	50		DH
MONT	02	0949	0954	1004	N15	E59	.878		6.8	15	SF		C	0954	50		E
WEND	02	0950E		1004D	N16	E56	.856		6.6	14D	SN		C				D
RAMY	02	1342	1448	1453D	N19	E50	.812		6.3	71D	SB	3	V		106		FDE
BIGB	02	1413	1421	1453	S35	E55	.860		6.7	40	SN	2	C	1421	80	1.4	
HOLL	02	1421E	1619	1725	N21	E47	.793		6.1	184D	SN	3	C		84		FDE
HOLL	02	1421E	1448	1725	N21	E47	.793		6.1	184D	SB	3	C		107		FDE
BIGB	02	1442	1447	1513	N20	E47	.789		6.1	31	SB	2	C	1447	80	1.2	
BIGB	02	1444	1454	1556	N27	E50	.842		6.4	72	SB	2	C	1454	90	1.4	
MCMA	02	1520E		1621D	N16	E48	.783	16051	6.2	61D	SN		P	1520	50	.8	E
HOLL	02	1527	1529	1553	S26	E57	.854		6.9	26	SN	2	C		29		DE
HOLL	02	1635	1635	1646	N15	E17	.430		4.0	11	SB	3	C		30		DE
PALE	02	1738	1751	1824	N14	E16	.408		3.9	46	SB	3	C		143		F
BIGB	02	1738	1741	1837	N28	E19	.601		4.2	59	SB	2	C	1741	40	.4	
BIGB	02	1840	1847	1858	N23	E57	.881		7.1	18	SN	2	C	1847	30	.6	
PALE	02	1858	1859	1937	N14	E15	.398		3.9	39	SN	3	C		20		F
BIGB	02	1900	1902	1902D	N16	E18	.452		4.1	2D	SN	1	P	1902	60	.6	
BIGB	02	1945	1947	1947D	N26	E50	.838		6.6	2D	SB	2	P	1947	40	.6	E
HOLL	02	1947	1948	1954	N26	E50	.838		6.6	7	SB	3	C		43		F
PALE	02	2009	2035U	2045D	N19	E50	.812		6.6	36D	SN	3	C		47		F
HOLL	02	2024	2037	2130	S21	E55	.829	16052	7.0	66	1B	3	C		200		FDE
HOLL	02	2031	2031	2041	N20	E48	.798		6.5	10	SB	3	C		20		
PALE	02	2035	2037	2040D	S21	E55	.829	16052	7.0	5D	1B	3	V		131		F
BIGB	02	2035E	2035	2035D	S26	E52	.812	16052	6.8		1B	1	P	2035	160	2.7	
PALE	02	2045	2045	2048	N19	E50	.812		6.6	3	SN	3	C		22		F
PALE	03	0133E		0158	N19	E47	.784	16051	6.6	25D	1B	3	C		0		FDE
MITK	03	0150	0157	0219	N17	E13	.416	16046	4.1	29	1N		C	0157	210	2.3	E
PALE	03	0157	0158	0201	N25	W50	.834		29.3	4	SN	3	C		102		
WEND	03	0842D	0937	1115E	N17	E41	.714	16051	6.4	153D	2N		C	0937	660	9.4	CF
WEND	03	0910		0930	S30	W46	.773		29.9	20	SN		C				CDG
WEND	03	0910	0924	1116	S17	E53	.804	16052	7.4	126	1N		C	0924	150	2.7	CE
MCMA	03	1310E	1347	1403	N18	E36	.666	16051	6.2	53D	SF		C	1347	70	1.0	EF
HOLL	03	1345	1352	1357	N22	E40	.731		6.6	12	SB	3	C		49		
HOLL	03	1433	1434	1536	N21	E35	.675		6.2	63	SB	3	C		83		F
MCMA	03	1433	1435	1545D	N19	E33	.640	16051	6.1	72D	SB		C	1435	100	1.4	E
RAMY	03	1433	1437	1441D	N20	E33	.647		6.1	8D	SB	3	V		145		UDE
BIGB	03	1433	1434	1505	N20	E33	.647		6.1	32	SB	3	C	1434	150	1.8	
WEND	03	1446E		1447D	N19	E35	.661		6.2	1D	SN		C	1447	75	1.0	
PALE	03	1758E		1825D	S21	E43	.708		7.0	27D	SB	3	C		0		H F
HOLL	03	1756	1802	1830	S20	E48	.759		7.3	32	SB	3	C		53		
BIGB	03	1759	1801	1810	S20	E47	.749		7.3	11	SN	2	P	1801	70	1.1	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MCMA	03	1759E	1801	1805	S22	E48	.764	16052	7.3	6D	SN		C	1801	35	.5	D
BIGB	03	1801E	1801	1816	N18	E30	.600		6.0	15D	SN	1	P	1801	30	.4	
MCMA	03	1919E	1920	1935D	N21	E38	.705	16051	6.7	16D	SN		C	1920	30	.4	E
MCMA	03	2026E		2100	N18	E37	.677	16051	6.6	34D	SB		C	2038	100	1.4	E
MCMA	03	2030	2031	2038D	S22	E47	.754	16052	7.4	8D	SN		C	2031	40	.6	E
PALE	04	0025	0036	0102D	N20	E32	.636		6.4	37D	SF	3	C		20		F
PALE	04	0025	0026	0102D	N20	E32	.636		6.4	37D	SN	3	C		25		F
MITK	04	0346	0407	0503D	N20	E30	.615	16051	6.4	77D	2B		C	0407	740	9.2	FTZ
MANI	04	0352E	0408	0505D	N19	E30	.607	16051	6.4	73D	2N	3	C		700		U F
MANI	04	0352E	0356	0505D	N19	E30	.607	16051	6.4	73D	2B	3	C		450		U F
PALE	04	0353E	0409	0432D	N20	E30	.615	16051	6.4	39D	2B	2	C		701		F
MANI	04	0405E	0408U	0410D	N19	E30	.607		6.4	5D					700	8.8	
MANI	04	0405E	0405U	0410D	N19	E30	.607	16051	6.4	5D	2N	2	P		750		FKU
WEND	04	0518E		0519D	N21	E29	.613		6.4	1D	SN		C				B
BUCA	04	0605	0606	0641	S19	E46	.736		7.7	36	SN		C	0606	32	.5	D
BUCA	04	0700E		0702	S25	E35	.639		6.9	2D	SN		P	0702	85	1.2	CD
MCMA	04	1349E	1356	1440	N20	E26	.573		6.5	51D	SN			1356	80	.9	
MCMA	04	1349E	1415	1440	N20	E26	.573	16051	6.5	51D	SN		C	1415	100	1.2	EK
MCMA	04	1459	1502	1538	N17	W07	.375	16046	4.1	39	SN		C	1502	40	.4	E
MCMA	04	1514	1525	1644D	N18	E23	.523	16051	6.4	90D	SN		C	1525	60	.7	E
BIGB	04	1521	1530	1607	N18	E21	.502		6.2	46	SN	3	C	1530	50	.6	
BIGB	04	1601	1602	1618	S19	E46	.736		8.1	17	SN	3	C	1602	60	.9	E
BIGB	04	1632	1633	1704	N18	E21	.502		6.3	32	SN	3	C	1633	30	.3	
MCMA	04	1645	1707	1755D	N18	E23	.523	16051	6.4	70D	SB		C	1707	150	1.8	E
BIGB	04	1651	1655	1802	N14	E23	.485		6.4	71	SN	3	C	1655	70	.7	
BIGB	04	1710	1714	1730	N15	W10	.364		4.0	20	SN	3	C	1714	60	.6	
BIGB	04	1803	1804	1824	N20	E25	.563		6.6	21	SN	3	C	1804	60	.7	E
MCMA	04	1805E		1822	N18	E25	.544	16051	6.6	17D	SN		C	1809	55	.6	E
BIGB	04	1927	1928	1936	N21	E25	.572		6.7	9	SN	2	C	1928	50	.6	
BIGB	04	1939	1940	2007	N19	E19	.493		6.2	28	SN	1	C	1940	90	1.0	
BIGB	04	1951	1952	1956	N21	E16	.491		6.0	5	SN	1	C	1952	30	.3	
MCMA	04	1956E		2007D	N18	E23	.523	16051	6.6	11D	1N		C	1956	200	2.4	E
BIGB	04	2003	2005	2034	S36	E40	.753		7.8	31	SF	1	P	2005	30	.4	G
BIGB	04	2005	2007	2011	N11	E14	.348		5.9	6	SF	1	C	2007	30	.3	
MCMA	04	2014E	2018	2026D	N18	E25	.544	16051	6.7	12D	SN		C	2018	60	.7	E
BIGB	04	2017	2018	2028	N19	E21	.513		6.4	11	SN	1	C	2018	50	.6	
BIGB	04	2021	2024	2024D	N19	E19	.493		6.3	3D	SN	1	P	2024	50	.5	
BIGB	04	2151	2153	2203	N17	E18	.461		6.3	12	SN	2	C	2153	50	.5	
BIGB	05	0034	0037	0058	N18	E16	.452		6.2	24	SF	2	C	0037	40	.4	
PALE	05	0041E	0042U	0053	N18	E15	.443		6.2	12D	SN	2	C		19		
MITK	05	0124		0202D	N20	E17	.486	16051	6.3	38D	1N		C	0200	450	5.1	FT
BIGB	05	0125E	0125	0140	N20	E18	.494		6.4	15D	SN	1	P	0125	100	1.1	
MANI	05	0130E	0133U	0220D	N20	E18	.494		6.4	50D	SB	3	V		150		F
MANI	05	0130E	0133U	0220D	N20	E18	.494		6.4	50D	SN	3	P		150	1.7	FK
MANI	05	0134E	0145U	0220D	N20	E18	.494	16051	6.4	46D	1N	3	V		300		F
MANI	05	0134E	0134U	0143	N07	E29	.513		7.2	9D	SF	3	P		80	.9	
MANI	05	0134E	0145U	0220D	N20	E18	.494		6.4	46D					300	3.4	
MANI	05	0134E	0134U	0143	N 7	E29	.513		7.2	9D	SN	3	V		80		
ISTA	05	0455		0740	N18	E14	.435		6.3	165	3B						EK
MITK	05	0455E	0526	0742D	N18	E14	.435	16051	6.3	167D	2B		C	0526	990	11.1	FTZ
MANI	05	0508E	0514U	0632	N20	E16	.477	16051	6.4	84D	1B	3	C		260		U F
MANI	05	0508E	0514	0632	N20	E16	.477	16051	6.4	84D	1N	3	P		260	2.9	FKU
MANI	05	0508E	0529U	0632	N20	E16	.477	16051	6.4	84D	1N	3	C		420		U F
MANI	05	0508E	0529U	0632	N20	E16	.477		6.4	84D					420	4.0	
BUCA	05	0600E		0825	N18	E12	.419	16051	6.2	145D	2B		C	0605	1074	11.9	
WEND	05	0605E	0607	0849D	N17	E12	.405	16051	6.2	164D	1N		C	0607	300	3.3	FHJT
MONT	05	0729E	0729	0918	N19	E14	.448		6.4	109D	SN		C	0729	220		B
MANI	05	0807E	0807U	0833D	N19	E15	.456		6.5	26D	SN	3	C		60		F
MANI	05	0807E	0807U	0833D	N19	E15	.456		6.5	26D	SF	3	P		60	.6	F
MCMA	05	1400E		1450D	S21	E34	.605	16052	8.1	50D	1B		C	1400	160	2.0	F
MCMA	05	1436E		1447D	S19	E90	1.000	16065	12.4	11D	SF		C	1443			
MCMA	05	1436E		1443D	N20	E10	.434	16051	6.4	7D	SF		C	1438	40	.4	E
BIGB	05	1437	1455	1538	S20	E37	.636		8.4	61	SF	3	C	1455	120	1.5	
BIGB	05	1541	1551	1631	S23	E12	.382		6.6	50	SN	3	C	1551	60	.7	
MCMA	05	1544E	1552	1606D	S24	E11	.388	16052	6.5	22D	SN		C	1552	60	.7	EH
MCMA	05	1649E		1704D	S18	E90	1.000	16065	12.5	15D	1B		P	1652			
BIGB	05	1824	1832	1835	S19	E90	1.000		12.5	11	SN	2	C	1832	40		
BIGB	05	1901	1902	1905	S19	E90	1.000		12.5	4	SN	2	C	1902	30		
BIGB	05	2012	2013	2018	N21	E04	.424		6.1	6	SF	2	C	2013	30	.3	
BIGB	05	2016	2017	2018	S19	E90	1.000		12.6	2	SB	2	C	2017	20		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	05	2038	2039	2046	S18	E18	.385		7.2	8	SB	2	C	2039	50	.5	
BIGB	05	2103	2105	2128	S17	W23	.441		4.2	25	SN	2	C	2105	60	.7	
PALE	06	0026	0027	0044	S20	E28	.527		8.1	18	SB	3	C		39		F
BIGB	06	0125	0126	0126D	S21	E25	.498		7.9	10	SN	1	P	0126	40	.5	
PALE	06	0405E	0405U	0411	S23	E14	.400		7.2	60	SN	3	C		74		F
BUCA	06	0615		0700	S23	E03	.335		6.5	45	SF		C	0620	107	1.2	
MCMA	06	1434E	1445	1525	N14	W07	.325	16051	6.1	51D	SB		C	1445	120	1.3	E
BIGB	06	1434	1442	1525	N14	W07	.325		6.1	51	SN	2	C	1442	90	.9	
HOLL	06	1435	1440	1509	N21	W 2	.419		6.5	34	SB	3	C		52		
HOLL	06	1437	1442	1454	N10	W 9	.281		5.9	17	SB	3	C		27		
BIGB	06	1457	1500	1606	N16	E80	.989		12.6	69	SN	3	C	1500	40		
MCMA	06	1528		1531D	N14	E80	.988	16067	12.6	3D	SN		C	1530			E
HUAN	06	1606	1607	1610	S32	W90	.999		29.9	4	SN	1	C	1607	25		D
MCMA	06	1642	1645	1700	N17	W01	.353	16051	6.6	18	SN		C	1645	40	.4	E
HOLL	06	1644	1646	1652	N17	W 0	.353		6.7	8	SN	3	C		44		F
HOLL	06	1654	1657	1703	N10	W11	.301		5.9	9	SN	3	C		22		
BIGB	06	1730	1733	1800	N17	E80	.989		12.7	30	SB	3	C	1733	130		AK
MCMA	06	1750	1810	1845	S21	E13	.366	16052	7.7	55	SN		C	1810	100	1.1	E
BIGB	06	1805	1810	1902	S22	E03	.318		7.0	57	SN	3	C	1810	100	1.0	
BIGB	06	1806	1808	1827	N17	E80	.989		12.8	21	SB	3	C	1808	80		AK
HUAN	06	1856	1858	1903	S18	E87	.998		13.3	7	SN	1	C	1858	20		D
BIGB	06	1856	1857	1905	S17	E85	.995		13.2	9	SB	3	C	1857	40		A
BIGB	06	1909	1912	1927	S19	E05	.277		7.2	18	SB	3	C	1912	40	.4	
PALE	06	1910E	1911	1922	S21	E 6	.314		7.2	12D	SB	3	C		20		U
BIGB	06	2001	2005	2021	N17	E80	.989		12.8	20	SB	3	C	2005	120		K
BIGB	06	2031	2040	2111	S15	E80	.983		12.9	40	SN	3	C	2040	40		
PALE	06	2039	2042	2046D	N 8	E 5	.220		7.2	7D	SN	3	C		26		F
BIGB	06	2042	2046	2126	N09	E68	.258		7.5	44	SN	3	C	2046	70	.7	
HUAN	06	2042		2053D	N09	E08	.258		7.5	11D	SF	1	P				D
BIGB	06	2105	2111	2139	N16	E70	.951	16067	12.1	34	1B	3	C	2111	190		A
PALE	06	2106E	2106U	2106D	N18	E72	.962		12.3		SN	3	C		55		FDE
BIGB	06	2211	2214	2228	N08	E06	.227		7.4	17	SF	3	C	2214	30	.3	
BIGB	07	0002E	0002	0006	S15	E80	.983		13.0	4D	SN	3	C	0002	20		
BIGB	07	0007	0019	0057	S15	E80	.983		13.0	50	SN	3	C	0019	30		
BIGB	07	0014	0016	0027	N17	E75	.973		12.6	13	SN	3	C	0016	60		
BIGB	07	0050	0052	0101	N15	E70	.950		12.3	11	SN	3	C	0052	40		
BIGB	07	0109	0119	0126	N06	E75	.968		12.7	19	SN	3	C	0119	50		
BIGB	07	0124	0127	0137E	S18	E85	.995		13.4	13D	SB	3	C	0127	110		A
MANI	07	0128	0128U	0134D	S18	E78	.976		12.9	6D	SN	3	P		40	1.0	
MANI	07	0244E	0244U	0307D	N21	W01	.416		7.0	23D	SN	3	P		50	.5	F
MANI	07	0244E	0244U	0307D	N21	W 1	.416		7.0	23D	SN	3	V		50		F
MANI	07	0627	0658	0712D	N20	W13	.451		6.3	45D	SF	3	P		20	.2	
MANI	07	0630E	0632	0707	N15	E68	.939		12.4	37D	SF	3	P		90	1.9	
MANI	07	0630E	0631	0715D	S18	E74	.960		12.8	45D	SB	3	V		30		
MANI	07	0630E	0631	0715D	S18	E74	.960		12.8	45D	SN	3	P		30	.7	
MANI	07	0630E	0632	0707	N15	E68	.939		12.4	37D	SN	3	V		90		
MANI	07	0652E	0653	0657	S16	W54	.814		3.2	5D	SN	3	V		15		
MANI	07	0652E	0653	0657	S16	W54	.814		3.2	5D	SF	3	P		15	.2	
MANI	07	0657E	0658	0712D	N20	W13	.451		6.3	15D	SN	3	V		20		
HUAN	07	1340		1352	S14	W90	1.000		30.8	12	SF	1	C	1346	20		D
HUAN	07	1354		1418	N20	W45	.767		4.2	24	SF	1	C				E
HOLL	07	1400	1403	1416	N15	W48	.777		4.0	16	SN	3	C		31		F
BIGB	07	1405E	1405	1444	N20	W46	.776	16046	4.1	39D	1B	3	P	1405	180	2.7	
HUAN	07	1442		1501	S18	E63	.893		12.3	19	SF	1	C				E
BIGB	07	1442	1449	1504	S18	E61	.878		12.2	22	SN	3	C	1449	80	1.7	
HOLL	07	1442	1447	1507	S19	E61	.878		12.2	25	SB	3	C		37		
BIGB	07	1509	1516	1528	N16	W22	.489		6.0	19	SF	3	C	1516	50	.6	
BIGB	07	1709	1714	1741	S25	W02	.367		7.6	32	SN	3	C	1714	40	.4	
HUAN	07	1710	1711	1718	S13	W90	1.000		1.0	8	SF	1	C	1711	20		D
PALE	07	1718	1719	1739	S23	W 6	.347		7.3	21	SN	3	C		23		F
BIGB	07	1723	1732	1811	N24	E49	.820	16058	11.4	48	1F	3	C	1732	130	2.0	
HOLL	07	1730	1732	1743	N20	W17	.483		6.5	13	SB	3	C		26		
BIGB	07	1734	1738	1745	S16	E70	.938		13.0	11	SN	3	C	1738	30		
HUAN	07	1736		1748	S13	W90	1.000		1.0	12	SF	1	C	1745	20		D
PALE	07	1745	1748	1835	N16	E60	.887		12.2	50	SN	3	C		26		FDE
PALE	07	1748	1749	1755	S16	E68	.926		12.8	7	SN	3	C		18		F
HOLL	07	1750	1752	1807	N20	W18	.492		6.4	17	SN	3	C		26		F
HUAN	07	1812		1818	S14	W90	1.000		1.0	6	SF	1	C	1816	20	.3	D
HUAN	07	1823		1826	N16	E56	.855		12.0	3	SF	1	C				
PALE	07	1825	1826	1834	S16	E67	.920		12.8	9	SN	3	C		22		FDE

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HUAN	07	1841	1842	1846	S14	W90	1.000		1.0	5	SF	1	C	1842	20		D
HOLL	07	1904	1906	1914	N 8	W 8	.243		7.2	10	SN	3	C		20		
BIGB	07	1905	1907	1928	N05	W10	.228		7.0	23	SN	3	C	1907	90	.9	
PALE	07	1906	1906	1911	N 8	W 8	.243		7.2	5	SN	3	C		21		F
BIGB	07	1941	1943	1949	N14	W23	.482		6.1	8	SF	3	C	1943	40	.5	
HOLL	07	1944	1945	1957	S18	W58	.853		3.5	13	SN	3	C		17		
BIGB	07	2259	2302	2303E	S21	W03	.304		7.7	4D	SF	3	C	2302	40	.4	
HOLL	07	2331	2337	0020	N20	W21	.520	16051	6.4	49	1B	3	C		195		Z F
BIGB	07	2334	2337	2400E	N29	W22	.627		6.3	26D	SB	3	C	2337	140	1.5	
BIGB	07	2352	2355	2400E	N02	E08	.169		8.6	8D	SF	3	C	2355	30	.3	
ISTA	08	0721E		0738	N16	E57	.863		12.6	17D	SF						D
ISTA	08	0721E		0731	S21	E00	.301	16052	8.3	10D	2N						F
MCMA	08	1452	1504	1518	N19	W28	.581	16051	6.5	26	SB		C	1504	50	.6	E
HUAN	08	1500		1510	N17	W27	.553		6.6	10	SF	1	C	1503	35	.4	E
MCMA	08	1542		1548D	S21	W11	.351	16052	7.8	6D	SN		C	1548	40	.4	E
MCMA	08	1602	1606	1620	S20	E53	.811	16065	12.6	18	SF		C	1606	40	.7	E
HUAN	08	1604		1614	S23	E50	.789		12.4	10	SF	1	C				
MCMA	08	1752	1759	1808	S21	W11	.351	16052	7.9	16	SN		C	1759	50	.6	E
HUAN	08	1818	1820	1828	N18	E51	.815		12.6	10	SN	1	C	1820	20	.3	D
PALE	08	1825	1825	1849	S22	W12	.373		7.9	24	SN	3	C		51		FDE
MCMA	08	1828E	1837	1855	N22	W26	.588	16051	6.8	27D	SF		C	1837	25	.3	D
MCMA	08	1828E	1836	1845	N16	E48	.780	16067	12.4	17D	SF		C	1836	30	.5	E
MCMA	08	1836E	1854	1944D	S21	W11	.351	16052	8.0	68D	SN		C	1854	100	1.1	E
MCMA	08	1901E	1915	1921D	N20	W28	.590	16051	6.7	20D	SN		C	1915	60	.8	E
MCMA	08	1912	1914	1917D	N03	W03	.124	16057	8.6	5D	SF		C	1914	30	.3	E
PALE	08	1914	1915	1917	S22	W12	.373		7.9	3	SN	3	C		25		FDE
MCMA	08	2022E	2022	2029D	S17	E17	.366	16069	10.1	7D	SN		C	2022	30	.3	E
MCMA	08	2039	2043	2055D	N03	W03	.124	16057	8.6	16D	SN		C	2043	40	.4	E
PALE	08	2043E	2043U	2056D	N 3	W 2	.118		8.7	13D	SN	3	C		49		F
HOLL	08	2133	2135	2213	N20	W33	.643		6.4	40	SN	3	C		41		
HOLL	08	2220	2236	2318	N24	W33	.672		6.5	58	SB	3	C		175		U
BIGB	09	0000E	0006	0058	N21	W30	.618		6.8	58D	SN	2	P	0006	140	1.7	
BIGB	09	0022	0031	0101E	N28	W66	.944		4.1	39D	SN	2	P	0031	50		
MITK	09	0037E		0123D	N21	W29	.608	16051	6.9	46D	1N		P	0037	230	2.9	E
BIGB	09	0042	0051	0101	N28	W36	.728		6.3	19	SF	2	C	0051	60	.8	
PALE	09	0211E	0224U	0229D	N15	E39	.679		12.0	18D	SN	3	C		32		
MITK	09	0252	0254	0310	S21	W16	.399		7.9	18	SF		C	0254			E
ISTA	09	0512		0519	N18	E23	.517		10.9	7	SN						D
ISTA	09	0512		0519	N17	W45	.753		5.8	7	SN						D
ISTA	09	0525		0537	S17	E49	.766		12.9	12	SN						E
ISTA	09	0621		0631	N19	W43	.741		6.0	10	SB						D
MONT	09	0720	0722	0726	N18	W45	.757		5.9	6	SN		C	0722	100		E
WEND	09	0802		0816	N15	E41	.702		12.4	14	SN		C				E
HOLL	09	1336E	1336U	1411	N18	W49	.796		5.9	35D	SB	3	C		43		F
MCMA	09	1555E	1601	1613	N18	W51	.815	16051	5.8	18D	SN		C	1601	80	1.3	E
BIGB	09	1556	1558	1624	N17	W50	.803		5.9	28	SB	3	C	1558	60	1.0	
HOLL	09	1556	1559	1620	N19	W44	.751		6.4	24	SB	3	C		68		
BIGB	09	1624	1625	1632	N22	W49	.811		6.0	8	SB	3	C	1625	10	.2	D
HOLL	09	1704	1706	1711	S21	W24	.489		7.9	7	SN	3	C		62		
BIGB	09	1832	1835	1854	N17	W53	.830		5.8	22	SB	3	C	1835	100	1.0	
MCMA	09	1833	1835	1841	N18	W51	.815	16051	5.9	8	SB		C	1835	50	.8	E
BIGB	09	1855	1857	1904	S25	W38	.675		6.9	9	SN	2	C	1857	50	.5	
BIGB	09	2038	2042	2055	N23	W45	.779		6.5	17	SN	1	P	2042	30	.4	
HOLL	09	2038	2040	2048	N24	W45	.784		6.5	10	SN	3	C		39		F
HUAN	09	2040	2041	2043	N14	E26	.516		11.8	3	SF	1	C	2041	30	.3	E
BIGB	09	2042E	2042	2050	N15	E26	.524		11.8	8D	SN	2	P	2042	30	.3	
BIGB	09	2049	2059	2123	N19	E29	.591		12.0	34	SF	2	C	2059	50	.6	
BIGB	09	2209	2219	2318	N24	W40	.738		6.9	69	SB	3	P	2219	140	1.9	
HOLL	09	2210	2219	2309	N24	W42	.757		6.8	59	SN	3	C		137		F
BIGB	09	2217	2242	2337	N26	W48	.818		6.3	80	SN	3	P	2242	90	1.4	
PALE	09	2219	2219	2234	N24	W43	.766		6.7	15	SN	3	C		72		F
BIGB	09	2235	2240	2307	N19	E26	.559		11.9	32	SB	3	P	2240	160	1.8	
PALE	09	2235	2239	2302	N19	E27	.569	16058	12.0	27	1B	3	C		210		FDE
HOLL	09	2237	2239	2304	N19	E27	.569	16058	12.0	27	1B	3	C		198		FDE
MANI	09	2239	2239	2248	N18	E27	.561		12.0	9	SN	3	P		100	1.2	F
MANI	09	2239E	2239	2248	N18	E27	.561		12.0	9D	SB	3	V		100		F
PALE	09	2243	2244	2253	N24	W43	.766		6.7	10	SN	3	C		39		F
PALE	09	2331	2332	2346	N19	E27	.569		12.0	15	SB	3	C		54		F
BIGB	09	2331	2332	2345	N17	E31	.598		12.3	14	SN	3	P	2332	20	.2	
HOLL	09	2332	2332	2349	N16	E31	.591		12.3	17	SB	3	C		38		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	10	0640	0643	0655	N20	W58	.878	16051	5.9	15	2B						SV
WEND	10	0641		0657	N23	W55	.863		6.2	16	SN		C	0644	50	1.0	C
WEND	10	0759		0820	N07	W38	.633		7.5	21	SN		C	0804	45	.6	CE
ISTA	10	0801		0810	N06	W37	.617		7.6	9	SN						E
WEND	10	0804		0908D	N26	W47	.809	16051	6.8	64D	2B		C	0902	690	12.0	CFI
ISTA	10	0806		0950	N21	W45	.769	16051	7.0	104	3B						FKLV
MANI	10	0825E	0825U	0900D	N20	W48	.794		6.8	35D	SN	2	V		110		F
MANI	10	0825E	0825U	0900D	N20	W48	.794		6.8	35D	SF	2	P		110	1.2	F
MCMA	10	1413		1417	N20	W60	.893	16051	6.1	4	SN		C	1413	30	.6	D
BIGB	10	1451	1455	1534	N05	W12	.251		9.7	43	SN	2	C	1455	160	1.7	G
MCMA	10	1452		1509D	N05	W13	.265	16071	9.6	17D	SN		C	1457	140	1.4	E
HUAN	10	1452		1504	N05	W14	.280		9.6	12	SF	1	C				E
HOLL	10	1453	1458	1524	N 7	W13	.285		9.6	31	SB	3	C		129		U F
HOLL	10	1455	1500	1515	N 3	W26	.450		8.7	20	SN	3	C		26		F
HOLL	10	1504	1504	1520	S12	W33	.557		8.2	16	SN	3	C		27		F
BIGB	10	1504	1505	1511	N20	W60	.893		6.1	7	SB	2	C	1505	50	1.0	
BIGB	10	1505	1506	1534	S27	E46	.765		14.1	29	SB	2	C	1506	20	.3	D
HUAN	10	1506		1520	S27	W45	.756		7.3	14	SF	1	C				D
MCMA	10	1506		1509D	S17	W47	.744	16052	7.1	3D	SN		P	1509	30	.5	D
MCMA	10	1506		1509D	N20	W60	.893	16051	6.1	3D	SF		P	1506	35	.7	D
HOLL	10	1513	1514	1522	S23	W37	.655		7.9	9	SN	3	C		20		F
HOLL	10	1609	1611	1628	N18	E25	.538		12.5	19	SN	3	C		26		F
HUAN	10	1634		1645D	N18	W90	1.000		3.9	11D	SF	1	P				
BIGB	10	1730	1732	1752	S25	W51	.805		6.9	22	SB	2	C	1732	80	1.3	
HOLL	10	1733	1734	1742	S23	W50	.790		7.0	9	SN	3	C		22		F
HOLL	10	1733	1810	1816	N27	E71	.965		16.1	43	SN	3	C		0		F
BIGB	10	1736	1739	1830	N24	E65	.932		15.6	54	SN	2	C	1739	50		G
MCMA	10	1759E		1821D	N23	E65	.930	16070	15.6	22D	SF		P	1805	25	.6	D
MCMA	10	1759E		1821D	S19	E30	.549	16065	13.0	22D	SB		P	1805	125	1.6	E
HOLL	10	1800	1803	1846	S16	E30	.532		13.0	46	SB	3	C		171		Z U
BIGB	10	1800	1806	1838	N18	E29	.582	16067	12.9	38	1B	2	C	1806	190	2.2	
PALE	10	1801E	1805U	1819D	S17	E27	.498		12.8	18D	SN	2	C		130		FDE
BIGB	10	1859E	1900	1927	N20	W63	.914		6.1	28D	SN	2	P	1900	30		
BIGB	10	2111	2113	2126	N20	W63	.914		6.2	15	SN	2	C	2113	40	.4	
BIGB	10	2158	2159	2205	S36	W54	.861		6.9	7	SF	2	C	2159	30	.5	
PALE	10	2201E	2202U	2214D	N18	E18	.464		12.3	13D	SN	2	C		47		FDE
BIGB	10	2218	2219	2235	N20	W13	.446		10.0	17	SN	2	C	2219	40	.4	
MANI	10	2239E	2240	2248D	N19	W56	.876		6.6	9D	SB	3	V		40		
BIGB	10	2239	2240	2249	N19	W60	.891		6.4	10	SN	2	C	2240	70	1.4	
MANI	10	2239E	2240	2248D	N19	W58	.876		6.6	9D	SN	3	P		40	.7	
BIGB	11	0002	0006	0013	N19	W60	.891	16051	6.5	11	1F	2	C	0006	130	2.7	
PALE	11	0008	0009	0011	N18	W61	.896		6.4	3	SN	2	C		20		
BIGB	11	0058	0101	0108	N19	W60	.891		6.5	10	SN	2	C	0101	20	.4	
BIGB	11	0110	0111	0129	N20	W63	.913		6.3	19	SN	2	C	0111	20	.5	
MONT	11	0852	0854	0904	S18	E21	.429		12.9	12	SF		C	0854	50		E
MONT	11	1013	1020	1032	N20	E11	.431	16067	12.3	19	1N		C	1020	250		
MONT	11	1054	1100	1105	N20	E16	.469		12.7	11	SN		C	1100	80		E
MONT	11	1059	1102	1108	N23	W78	.985		5.6	9	SN		C	1102	110		
MCMA	11	1355	1402	1420D	S25	W53	.823	16052	7.6	25D	SN		C	1402	60	1.2	E
MCMA	11	1356	1400	1409	N21	E10	.439	16067	12.3	13	SN		C	1400	80	.9	E
MCMA	11	1428	1442	1450	N23	E51	.830	16070	15.4	22	SN		C	1442	40	.7	E
HOLL	11	1541	1555	1604	N25	E52	.845		15.6	23	SB	3	C		54		F
BIGB	11	1553	1555	1615	N23	E52	.839		15.6	22	SN	2	C	1555	40	.7	G
MCMA	11	1555E	1555	1601	N23	E51	.830	16070	15.5	6D	SN		C	1555	40	.7	E
MCMA	11	1745E	1746	1805D	S25	W55	.840	16052	7.6	20D	SN		C	1746	80	1.6	E
BIGB	11	1745	1747	1818	S26	W55	.843		7.6	33	SN	3	C	1747	50	.5	
BIGB	11	1747	1753	1809	N21	W78	.985	16051	5.9	22	1B	3	C	1753	200		A
MCMA	11	1748	1752	1805D	N23	W85	.998	16051	5.4	17D	1B		C	1752			A
BIGB	11	1850	1851	1859	N18	E08	.384		12.4	9	SB	3	C	1851	20	.2	
MCMA	11	1905E		1917D	N23	E51	.830	16070	15.6	12D	SN		C	1917	50	.9	E
BIGB	11	1909	1915	1932	N23	E52	.839		15.7	23	SN	3	C	1915	40	.7	G
BIGB	11	1913	1918	1940	S23	W53	.819		7.8	27	SN	3	C	1918	30	.5	
BIGB	11	2219	2220	2225	S19	E12	.338		12.8	6	SF	3	C	2220	30	.3	
BIGB	11	2334	2338	2349	N26	E90	1.000		18.7	15	SN	3	C	2338	40		
BIGB	11	2337	2338	2340	N20	W60	.990		6.0	3	SN	3	C	2338	20		
BIGB	12	0014	0015	0017	N20	W78	.984		6.2	3	SN	2	C	0015	50		
MANI	12	0249E	0249U	0300	N20	W85	.998	16051	5.7	11D	1B	3	C		0		
MANI	12	0249E	0249	0300	N20	W85	.998	16051	5.7	11D	1N	3	P				
ISTA	12	0647		0652	S24	W66	.920		7.3	5	SN						D
HUAN	12	1258		1306	N27	E90	1.000		19.3	8	SF	1	C	1302	20		D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HUAN	12	1301	1304	1306	S23	E90	1.000		19.3	5	SN	1	C	1304	30		
HUAN	12	1322		1329	N25	E90	1.000		19.3	7	SF	1	C	1322	15		D
HUAN	12	1354		1413	N25	E90	1.000		19.3	19	SF	1	C	1403	20		D
HUAN	12	1421	1423	1428	N25	E90	1.000		19.3	7	SF	1	C	1423	20		D
HUAN	12	1438		1450	N25	E90	1.000		19.4	12	SF	1	C	1444	20		D
MCMA	12	1445E		1516D	S18	E05	.272	16065	13.0	31D	SF		C	1501	80	.9	E
BIGB	12	1449	1500	1521	S17	E05	.256		13.0	32	SF	2	C	1500	60	.6	
MCMA	12	1452E		1549D	S23	W66	.919	16052	7.7	57D	SF		C	1452	50	1.4	E
BIGB	12	1504	1507	1517	S25	E68	.932		17.7	13	SB	2	C	1507	10		
HUAN	12	1517	1524	1532	N25	E90	1.000		19.4	15	SF	1	C	1524	15		D
HUAN	12	1541		1552	N25	E90	1.000		19.4	11	SF	1	C	1545	20		D
MCMA	12	1545	1548	1610	N14	W07	.315	16067	12.1	25	SN		C	1548	40	.4	E
BIGB	12	1547	1548	1548D	N13	W07	.300		12.1	1D	SF	2	P	1548	70	.7	
HUAN	12	1608	1609	1615	N18	W90	1.000		5.9	7	SF	1	C	1609	20		D
HUAN	12	1649	1652	1657	N20	W90	1.000		6.0	8	SF	1	C	1652	20		D
BIGB	12	1652	1654	1658	N20	W90	1.000		6.0	6	SN	2	C	1654	30		
BIGB	12	2049	2055	2105	N19	W90	1.000		6.1	16	SN	3	C	2055	40		
HOLL	12	2052	2055	2104	N20	W89	1.000		6.2	12	SN	3	C		0		
BIGB	12	2112	2113	2118	N16	W06	.341		12.4	6	SN	3	C	2113	40	.4	
HOLL	12	2113	2113	2212	N17	W 7	.361		12.4	59	SB	3	C		53		F
BIGB	12	2128	2133	2156	S16	W50	.775		9.1	28	SN	3	P	2133	30	.5	
HOLL	12	2231	2234	2240	S17	W 0	.242		12.9	9	SN	3	C		29		
BIGB	12	2237	2238	2247	S11	W01	.140		12.9	10	SF	3	C	2238	30	.3	
HOLL	12	2347	2351	0014	S17	W 1	.242		12.9	27	SN	3	C		57		
BIGB	13	0004	0011	0053	S25	W73	.958		7.5	49	SB	2	C	0011	50		
HOLL	13	0005	0010	0034	S22	W68	.931		7.9	29	SB	3	C		35		F
ISTA	13	0836		0854	N23	E30	.630		15.6	18	SN						D
ATHN	13	0837	0840	0854	N22	E30	.622		15.6	17	SB	3	C		80		DE
ISTA	13	0847		0857	N11	W15	.349		12.2	10	SF						E
HOLL	13	1357	1358	1409	S17	W 9	.286		12.9	12	SB	3	C		57		
HOLL	13	1405	1430	1457	N25	E65	.933		18.5	52	SN	3	C		82		
BIGB	13	1408	1431	1500	N24	E61	.907		18.2	52	SN	2	C	1431	60	1.2	
HOLL	13	1413	1443	1450	N17	W17	.439		12.3	37	SN	3	C		28		
MCMA	13	1426	1429	1446D	N22	E58	.882	16073	18.0	20D	SF		C	1429	30	.7	D
HOLL	13	1429	1430	1435	S17	W 9	.286		12.9	6	SN	3	C		29		
BIGB	13	1430	1431	1434	S15	W06	.233		13.2	4	SF	2	C	1431	20	.2	
MCMA	13	1437	1440	1446D	S12	W10	.232	16065	12.9	9D	SN		C	1440	75	.8	E
BIGB	13	1437	1438	1446	S11	W09	.209		12.9	9	SN	2	C	1438	60	.6	
HOLL	13	1437	1438	1446	S12	W 9	.220		12.9	9	SN	3	C		39		
HOLL	13	1454	1508	1605	N17	W17	.439	16067	12.3	71	1B	3	C		290		UDE
BIGB	13	1455	1506	1601	N14	W17	.405	16067	12.3	66	1B	2	C	1506	100	1.1	
HUAN	13	1456		1539D	N14	W18	.416	16067	12.3	43D	1N	1	P	1507	220	2.4	E
RAMY	13	1509E	1511	1513D	N17	W17	.439	16067	12.4	4D	1B	3	V		218		
MCMA	13	1523E		1552	N13	W20	.430	16067	12.1	29D	SB		P	1523	100	1.1	BE
BIGB	13	1524	1526	1538	N21	W41	.728		10.6	14	SB	2	C	1526	110	1.5	
HUAN	13	1525	1527	1531	N20	W40	.713		10.6	6	SF	1	C	1527	40	.5	D
MCMA	13	1525	1527	1536	N20	W39	.702	16058	10.7	11	SB		C	1527	50	.7	E
HOLL	13	1525	1526	1536	N18	W39	.691		10.7	11	SB	3	C		110		
HOLL	13	1625	1626	1655	S17	W10	.295		12.9	30	SB	3	C		38		
MCMA	13	1625	1630	1655	S18	W10	.309	16065	12.9	30	SN		C	1630	40	.4	E
BIGB	13	1627	1633	1653	S18	W09	.300		13.0	26	SN	2	C	1633	40	.4	
PALE	13	1726	1729	1730D	N23	E59	.891		18.2	4D	SN	3	C		35		F
MCMA	13	1726	1728	1735	N23	E58	.884	16073	18.1	9	SN		C	1728	25	.6	D
HOLL	13	1728	1730	1736	N25	E64	.927		18.5	8	SB	3	C		26		
BIGB	13	2034E	2035	2109	N15	E87	.999		20.4	35D	SB	3	P	2035	50		
BIGB	13	2148	2201	2218	N23	E55	.862		18.0	30	SB	3	C	2201	80	1.4	
HOLL	13	2151	2155	2209	N25	E61	.909		18.5	18	SB	3	C		20		F
BIGB	13	2215	2216	2236	N14	E87	.999		20.5	21	SB	3	C	2216	20		
BIGB	13	2243	2245	2258	N14	E87	.999		20.5	15	SB	3	C	2245	20		
PALE	14	0108	0114	0131	N24	E18	.530		15.4	23	SB	3	C		51		U F
HOLL	14	0111	0116	0133	N25	E20	.558		15.5	22	SB	3	C		74		
BIGB	14	0111	0115	0137	N25	E20	.558		15.5	26	SF	2	C	0115	50	.5	G
MONT	14	0837E	0837	0844D	S13	W21	.393		12.8	7D	SN		C	0837	110		
HOLL	14	1325	1325	1353	S20	W24	.486		12.8	28	SN	3	C		34		
HOLL	14	1332	1333	1415	N17	W29	.571		12.4	43	SN	3	C		24		
MCMA	14	1640	1647	1715	S18	W22	.444	16065	13.0	35	SN		C	1647	40	.5	E
HOLL	14	1642	1645	1653	S17	W23	.449		13.0	11	SN	3	C		29		F
MCMA	14	1803E		1818D	S18	W22	.444	16065	13.1	15D	SN		C	1810	20	.2	E
PALE	14	1809	1810	1824D	S17	W24	.462		13.0	15D	SN	3	C		19		F
HOLL	14	1809	1810	1821	S17	W23	.449		13.0	12	SN	3	C		37		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	14	1810	1810	1819	S12	W27	.474		12.7	9	SN	3	C		25		F
BIGB	14	2109	2114	2215	N15	W46	.753		11.4	66	SN	2	C	2114	30	.4	
HOLL	14	2116	2116	2136	N16	W46	.757		11.4	20	SN	3	C		19		
HOLL	14	2241	2244	2301	S17	W26	.488		13.0	20	SB	3	C		37		
HOLL	14	2245	2251	2311	N24	E41	.743		18.0	26	SN	3	C		40		
BIGB	14	2252	2255	2313	N22	E41	.733		18.0	21	SN	2	C	2255	40	.5	
BIGB	14	2347	2349	2357	S23	W90	1.000		8.2	10	SN	2	C	2349	30		
MCMA	15	1322	1327	1358	N22	E32	.641	16073	18.0	36	SN		C	1327	30	.4	E
HOLL	15	1322	1330	1333	N23	E32	.648		18.0	11	SN	3	C		21		F
MCMA	15	1410E	1422	1438D	N22	E32	.641	16073	18.0	28D	SN		C	1422	20	.3	D
BIGB	15	1418	1420	1454	N15	W60	.883		11.1	36	SF	2	C	1420	80	1.6	
BIGB	15	1458	1459	1505	S19	W41	.685		12.5	7	SN	2	C	1459	20	.3	
BIGB	15	1528	1537	1538E	N28	E40	.757		18.6	10D	SN	2	C	1537	20	.3	G
MCMA	15	1533E	1537	1544	N27	E41	.760	16073	18.7	11D	SN		C	1537	40	.6	E
HOLL	15	1536	1537	1541	N25	E38	.720		18.5	5	SF	3	C		19		
BIGB	15	1624	1627	1709	N15	W45	.742		12.3	45	SF	2	C	1627	60	.9	
BIGB	15	1627	1628	1645	N23	W03	.436		15.5	18	SF	2	C	1628	30	.3	G
MCMA	15	1630E		1649D	N23	W02	.435	16070	15.5	19D	SN		C	1630	50	.5	EJ
BIGB	15	1910	1915	1928	N11	W50	.784		12.0	18	SN	3	C	1915	110	1.8	
HOLL	15	1913	1915	1919	N12	W50	.786		12.1	6	SN	3	C		35		F
MCMA	15	1913		1928	N12	W50	.786	16067	12.1	15	SN		C	1915	35	.6	E
MCMA	15	1913		1923	N22	E28	.600	16073	17.9	10	SF		C	1915	25	.3	E
MCMA	15	1945	1947	1959D	N19	W45	.758	16067	12.4	14D	SN		C	1947	60	.9	E
BIGB	15	1946	1947	1955	N17	W47	.770		12.3	9	SN	2	C	1947	50	.8	
HOLL	15	1946	1948	1959	N19	W46	.768		12.4	13	SB	3	C		57		U F
HOLL	15	2129	2129	2139	N20	W48	.791		12.3	10	SN	3	C		17		
BIGB	15	2129	2137	2201	N21	W47	.785		12.4	32	SF	2	C	2137	30	.5	
BIGB	15	2147	2149	2154	N17	W47	.770		12.4	7	SB	2	C	2149	30	.5	
HOLL	15	2148	2151	2204	N17	W47	.770		12.4	16	SB	3	C		58		
TELV	16	1029E	1032	1042	N15	W12	.362		15.5	13D	SF	1	C		61	.6	E
MCMA	16	1340	1418	1632D	N23	E17	.507	16073	17.8	172D	SN		C	1418	125	1.5	EK
MCMA	16	1340	1355	1632D	N23	E17	.507		17.8	172D	SN			1355	70	.8	
MCMA	16	1348	1350	1359	S13	W50	.772	16065	12.8	11	SN		C	1350	25	.4	D
BIGB	16	1411E	1413	1455	N23	E16	.499		17.8	44D	SN	2	C	1413	180	1.9	
HOLL	16	1412	1416	1421	N23	E19	.524		18.0	9	SN	3	C		42		F
HUAN	16	1412		1421	N23	E15	.492		17.7	9	SF	1	C				E
HOLL	16	1508	1514	1518	N23	E16	.499		17.8	10	SN	3	C		26		
BIGB	16	1510	1511	1530	N23	E15	.492		17.8	20	SN	2	C	1511	60	.6	
MCMA	16	1745	1749	1757	N23	E15	.492	16073	17.9	12	SN		C	1749	30	.3	D
MCMA	16	1803	1810	1857	N23	E15	.492	16073	17.9	54	SB		C	1810	125	1.5	E
HOLL	16	1806	1806	1814	S12	W55	.822		12.6	8	SN	3	C		16		
BIGB	16	1806	1810	1850	N24	E14	.498		17.8	44	SB	2	C	1810	140	1.5	
HOLL	16	1807	1810	1850	N21	E13	.451	16067	17.7	43	1B	3	C		266		Z U
PALE	16	1810E	1810U	1833	N22	E13	.464		17.7	23D	SN	3	C		152		FDE
HUAN	16	1811E		1825	N23	E15	.492	16073	17.9	14D	1N	1	P	1811	180	2.0	E
HOLL	16	1832	1846	1914D	S15	W55	.825		12.6	42D	SB	3	V		124		F
MCMA	16	1832	1841	1915	S14	W52	.794	16065	12.9	43	SN		C	1841	80	1.4	E
BIGB	16	1832	1851	1922	S15	W53	.806		12.8	50	SB	2	C	1851	100	1.7	
HUAN	16	1836	1845	1900	S15	W54	.815		12.7	24	SN	1	C	1845	60	1.0	E
PALE	16	1837E	1843U	1919D	S17	W51	.789		13.0	42D	SN	3	C		32		FDE
HOLL	16	1842	1842	1852	S18	W51	.791		13.0	10	SN	3	C		28		F
MCMA	16	1937E	1939	1950	N23	E14	.485	16073	17.9	13D	SN		C	1939	25	.3	D
MCMA	16	1940	1941	1946	S18	E27	.510	16079	18.8	6	SF		C	1941	35	.4	
BIGB	16	2002	2003	2007	N20	W60	.891		12.3	5	SN	2	C	2003	30	.6	
BIGB	16	2228	2229	2246	N24	E11	.479		17.8	18	SF	2	C	2229	80	.8	
BIGB	16	2236	2255	2346	N13	W62	.895	16067	12.3	70	2B	2	C	2255	250	5.5	
ISTA	17	0655E		0710	N09	E09	.251		18.0	15D	SF						E
ISTA	17	0715		0850	N06	W24	.429		15.5	95	SN						EK
ISTA	17	0725		0820	N23	E09	.453		18.0	55	SN						EK
RAMY	17	1222	1223	1225	N20	E 7	.399		18.0	3	SB	3	C		31		
MCMA	17	1500E	1513	1530D	S31	E90	1.000	16089	24.4	30D	SF		C	1513			
BIGB	17	1512	1516	1523	S31	E90	1.000		24.4	11	SN	2	C	1516	50		
BIGB	17	1546	1555	1621	S13	W64	.900		12.9	35	SN	2	C	1555	40	.9	
MCMA	17	1604E		1611D	S13	W65	.907	16065	12.8	7D	SF		P	1607	30	.7	D
MCMA	17	1604E		1643D	N07	W30	.521	16078	15.4	39D	SN		C	1607	80	.9	E
BIGB	17	1606	1608	1641	N06	W30	.517		15.4	35	SN	2	C	1608	40	.5	
BIGB	17	1748	1749	1803	S17	W70	.941		12.5	15	SB	2	C	1749	50		
BIGB	17	1847	1853	1908	N23	E01	.430		17.9	21	SB	2	C	1853	90	.9	
HOLL	17	1848	1853	1906	N22	W 0	.414		17.8	18	SB	3	C		112		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	18	1613	1624	1630	S 6	E75	.965		24.3	17	SN	3	C		0		
BIGB	18	1630	1632	1644	N07	E45	.718		22.1	14	SN	2	C	1632	50	.7	
HOLL	18	1811	1812	1830	S13	W71	.945		13.4	19	SB	3	C		78		
MCMA	18	1811	1813	1828	S20	W73	.957	16065	13.3	17	SN		C	1813			E
HOLL	18	1813	1813	1820	S 6	E74	.961		24.3	7	SN	3	C		0		
HOLL	18	1842	1848	1854	S 6	E74	.961		24.3	12	SN	3	C		0		
MCMA	18	2018	2020	2041	N22	W17	.492	16073	17.6	23	SN		C	2020	25	.3	D
HOLL	18	2040	2050	2130	N 9	W13	.296		17.9	50	SB	3	C		94		F
MCMA	18	2045	2051	2058	N08	W10	.248	16082	18.1	13	SN		C	2051	50	.5	E
BIGB	18	2047	2049	2057	N08	E12	.273		19.8	10	SN	2	C	2049	70	.7	
HUAN	18	2049		2053	N07	W13	.276		17.9	4	SF	1	C	2050	40	.4	E
HOLL	18	2050	2058	2156	N22	W14	.468	16073	17.8	66	1B	3	C		360		U F
MCMA	18	2051	2102	2119D	N22	W15	.476	16073	17.7	28D	SB		C	2102	150	1.6	E
RAMY	18	2052E	2059U	2104D	N23	W15	.489	16073	17.7	12D	1B	3	C		280		U F
HUAN	18	2055	2100	2121	N22	W15	.476	16073	17.7	26	1N	1	C	2100	200	2.2	E
BIGB	18	2056	2100	2145	N22	W15	.476	16073	17.7	49	1B	2	C	2100	240	2.5	
HOLL	18	2102	2103	2108	S13	W72	.951		13.5	6	SN	3	C		0		
HOLL	18	2132	2134	2146	N 9	W13	.296		17.9	14	SN	3	C		29		
HOLL	18	2355	2357	0009	S 6	E70	.939		24.2	14	SN	3	C		80		
HOLL	19	0025	0050	0106	S 5	E69	.933		24.2	41	SB	3	C		85		
HOLL	19	0042	0050	0106	S 5	E69	.933		24.2	24	SB	3	C		85		
HOLL	19	0043	0045	0052	S18	W76	.970		13.3	9	SN	3	C		0		
MANI	19	0046E	0046U	0055D	S18	W77	.974		13.3	9D	SF	2	P		20	.5	
MANI	19	0046E	0046U	0055D	S18	W77	.974		13.3	9D	SN	2	V		20		
PALE	19	0103E	0103U	0105D	S 6	E74	.961		24.6	2D	SN	3	C		41		F
ISTA	19	0608		0613	N26	E01	.473		19.3	5	SB						E
MONT	19	0732	0734	0738	N23	W19	.519		17.9	6	SF		C	0734	50		E
MONT	19	0754	0804	0814	S0E	E63	.890		24.1	20	SF		C	0804	50		E
MCMA	19	1306	1310	1324	N22	W23	.545	16073	17.8	18	SB		C	1310	60	.7	E
HUAN	19	1309		1316	N22	W22	.536		17.9	7	SF	1	C				E
HOLL	19	1310	1310	1326	N22	W23	.545		17.8	16	SB	3	C		91		
HUAN	19	1313	1315	1324	N18	W90	1.000		12.8	11	SF	1	C	1315	25		D
HOLL	19	1643	1644	1649	S 5	E59	.857		24.1	6	SN	3	C		27		
BIGB	19	1726	1728	1737	S25	E26	.557		21.7	11	SN	1	C	1728	40	.5	K
BIGB	19	1756	1757	1816	S23	E24	.518		21.5	20	SN	1	C	1757	50	.6	
BIGB	19	1835	1836	1842	S25	E26	.557		21.7	7	SN	1	C	1836	40	.5	K
BIGB	19	2005	2006	2012	S25	E26	.557		21.8	7	SB	1	C	2006	40	.5	K
HOLL	19	2038	2038	2053	S 5	E59	.857		24.3	15	SN	3	C		16		
BIGB	19	2119	2120	2142	S28	E55	.852		24.0	23	SN	1	C	2120	50	.9	
BIGB	19	2237	2238	2247	S22	E33	.611		22.4	10	SB	2	C	2238	10	.1	D
HOLL	19	2238	2238	2247	S20	E36	.634		22.6	9	SB	3	C		22		
TELV	20	0933	0938	0950	N22	W19	.506		19.0	17	SF	1	C		163	1.7	
MCMA	20	1308	1309	1328	S23	E28	.563	16083	22.6	20	SF		C	1309	30	.4	D
HOLL	20	1319	1319	1324	S 7	E48	.744		24.2	5	SN	3	C		23		
MCMA	20	1401	1404	1410D	S23	E28	.563	16085	22.7	9D	SN		C	1404	20	.3	D
HOLL	20	1433	1435	1502	N 7	W37	.616		17.8	29	SN	3	C		26		
MCMA	20	1605	1608	1611D	S07	E46	.720	16088	24.1	6D	SN		C	1608	20	.3	D
HOLL	20	1755	1756	1810	S21	E25	.512		22.6	15	SB	4	C		29		
HOLL	20	1910	1911	1921	N 7	W39	.642		17.9	11	SN	4	C		27		
HUAN	20	2006E	2006	2009	S25	E25	.548		22.7	3D	SF	1	C	2006	15	.2	D
HOLL	20	2107	2108	2116	S23	E22	.498		22.5	9	SN	3	C		30		
HOLL	21	0041	0041	0050	N 7	W41	.668		18.0	9	SN	3	C		25		
PALE	21	0151	0156	0228	S29	E52	.832		25.0	37	SN	3	C		81		F H
PALE	21	0219	0228	0232D	S 8	E40	.646	16088	24.1	13D	1B	3	C		272		DE S
ISTA	21	0742		0746	N19	W50	.803		17.6	4	SN						D
ISTA	21	0830		0834	S24	E22	.509		23.0	4	SF						D
BIGB	21	1607	1610	1617	N21	W56	.861		17.5	10	SN	2	C	1610	20	.4	
MCMA	21	1607	1612	1617	N21	W56	.861	16073	17.5	10	SN		C	1612	25	.5	D
HUAN	21	1611	1611	1616	N20	W57	.866		17.4	5	SF	1	C	1611	20	.3	D
HOLL	21	1819	1836	1852	S28	E43	.750		25.0	33	SB	3	C		69		F
BIGB	21	1820	1837	1903	S29	E44	.764		25.1	43	SB	2	C	1837	80	1.1	
PALE	21	1837	1838	1849D	S29	E43	.755		25.0	12D	SN	3	C		32		FDE
HOLL	21	2124	2129	2134	N 7	W86	.998		15.4	10	SN	3	C		0		
BIGB	22	0017	0019	0023	N24	W64	.922		17.2	6	SN	2	C	0019	20	.5	
MANI	22	0455E	0455U	0530D	N22	W59	.885		17.8	35D	SN	3	V		80	1.5	F
MANI	22	0455E	0455U	0530D	N22	W59	.885		17.8	35D	SB	3	V		80		F
MONT	22	1016	1019	1026	S29	E37	.700		25.2	10	SF		C	1019	50		E
MONT	22	1052	1058	1106	S07	E23	.399		24.2	14	SN		C	1058	70		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		CONO.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
TELV	22	1111	1115	1118D	S20	E37	.648		25.2	7D	2B	3	C		490	6.3	U
TELV	22	1126E	1142	1236	S21	E37	.653		25.3	70D	1N	3	C		367	4.7	U
BIGB	22	1459	1500	1522	S08	E20	.356		24.1	23	SF	2	C	1500	30	.3	
HOLL	22	1500	1501	1509	S 6	E20	.348		24.1	9	SN	3	C		30		
HOLL	22	1630	1642	1653D	S19	W 1	.295		22.6	23D	SN	3	C		41		F
BIGB	22	1654	1700	1753	S09	E00	.124		22.7	59	SF	2	C	1700	50	.5	
BIGB	22	1849	1850	1906	S27	E32	.638		25.2	17	SN	2	C	1850	30	.4	
BIGB	22	2238	2239	2251	S20	W04	.318		22.6	13	SF	2	C	2239	30	.3	
HOLL	23	0100	0104	0106	S11	E57	.842		27.3	6	SN	2	C		18		
TELV	23	0832	0835	0841	N17	E35	.633		26.0	9	SN	2	C		80	1.0	
TELV	23	1026	1027	1042	N18	E33	.616		25.9	16	SN	2	C		80	.9	
TELV	23	1130	1142	1226	N21	E35	.658		26.1	56	1N	2	C		245	3.0	
TELV	23	1149	1153	1159	N18	E32	.604		25.9	10	SF	2	C		25	.3	
HOLL	23	1727	1737	1806	S19	W15	.385		22.6	39	SB	3	C		48		F
BIGB	23	1734	1739	1807	S19	W14	.375		22.7	33	SB	2	C	1739	40	.4	
ISTA	24	0437E		0510	N14	E90	1.000		30.9	33D							A
ISTA	24	0447		0550	S08	E01	.112		24.3	63	SN						E
ISTA	24	0528		0550	N18	W17	.435		23.0	22	SN						D
TELV	24	0750	0757	0834	N22	E88	1.000		30.9	44	SN	2	C		30		
HOLL	24	1449	1451	1500	S26	W28	.592		22.5	11	SN	3	C		32		F
MCMA	24	1602	1605	1611	N14	E85	.997	16104	31.0	9	SF		C	1605			E
HOLL	24	1604	1604	1609	N15	E86	.998		31.1	5	SF	3	C		0		
HOLL	24	1629	1630	1638	S24	W27	.565		22.7	9	SN	3	C		42		
HOLL	24	1630	1637	1643	S 6	W 8	.158		24.1	13	SB	3	C		72		F
HUAN	24	1631		1641	N15	E90	1.000		31.4	10	SF	1	C				
MCMA	24	1632	1638	1644	S03	W13	.226	16088	23.7	12	SN		C	1638	35	.4	E
BIGB	24	1636	1637	1643	S04	W11	.195		23.9	7	SN	2	C	1637	30	.3	
BIGB	24	1938	1939	1943	N17	E90	1.000		31.6	5	SN	2	C	1939	30		
BIGB	24	2128	2129	2143	S03	W15	.260		23.8	15	SB	2	C	2129	30	.3	
BIGB	24	2314	2316	2326	N22	E03	.404		25.2	12	SF	2	C	2316	30	.3	G
MONT	25	0817	0827	0847	N11	E13	.309		26.3	30	SF		C	0827	60		E
TELV	25	0913	0919	0934	N28	E66	.938		30.3	21	SN	2	C		80		
MCMA	25	1605E	1618	1635	S26	W46	.772	16085	22.2	30D	SF		C	1618	60	1.1	E
BIGB	25	1615	1619	1631	S27	W47	.785		22.2	16	SN	2	C	1619	40	.6	
MCMA	25	1807	1811	1830D	S03	W27	.454	16088	23.7	23D	SF		C	1811	25	.3	D
BIGB	25	1808	1809	1831	S04	W27	.455		23.7	23	SN	2	C	1809	20	.2	
HOLL	25	1927	1927	1939	S23	W41	.709		22.7	12	SB	3	C		21		
HOLL	25	2002	2003	2009	S23	W41	.709		22.8	7	SN	3	C		28		
MCMA	25	2037	2038	2043	N16	E65	.917	16104	30.7	6	SF		C	2038	30	.7	E
HOLL	25	2206	2208	2216	S12	E19	.367		27.3	10	SN	3	C		21		
HOLL	26	0026	0026	0032	N14	E66	.921		31.0	6	SN	3	C		15		F
BUCA	26	0705		0734	N17	E68	.936		31.4	29	1N		C	0707	107		E
ISTA	26	0708E		0730	N19	E70	.949		31.5	22D	3B						F
MONT	26	0709E	0712	0731	N16	E66	.923		31.2	22D	SN		C	0712	80		
MONT	26	0714	0741	0801	S25	W46	.769		22.9	47	SF		C	0741	50		E
ISTA	26	0715E		0800	S26	W47	.782	16085	22.8	45D	1B						D
BUCA	26	0716		0745	S28	W48	.798		22.7	29	SF		C	0723	85	1.4	
HOLL	26	1507	1507	1512	N11	W65	.912		21.8	5	SN	4	C		20		
MCMA	26	1540	1545	1558	N11	W66	.919	16102	21.7	18	SF		C	1545	35	.9	E
BIGB	26	1541	1544	1550	N10	W67	.925		21.6	9	SB	1	C	1544	20		
HOLL	26	1543	1545	1556	N11	W65	.912		21.8	13	SB	4	C		25		
HUAN	26	1544		1549	N10	W67	.925		21.6	5	SF	1	C	1547	25		D
BIGB	26	1645	1647	1657	N19	W50	.800		22.9	12	SN	1	C	1647	40	.6	
BIGB	26	1645	1647	1702	N10	W67	.925		21.7	17	SB	1	C	1647	30		
MCMA	26	1646	1647	1655D	N22	W48	.792	16086	23.1	9D	SN		C	1647	20	.3	D
HOLL	26	1646	1646	1650	N18	W50	.797		22.9	4	SB	3	C		21		
HOLL	26	1647	1648	1654	N11	W66	.919		21.7	7	SB	3	C		16		
BIGB	26	1757	1758	1808	S28	W70	.950		21.5	11	SB	1	C		20		
BIGB	26	2039	2050	2144	N10	W67	.925		21.8	65	SB	1	C	2050	60		
MCMA	26	2040E	2043	2058D	N11	W68	.932	16102	21.8	18D	SF		C	2043	50	1.4	E
HOLL	26	2040	2053	2128	N10	W70	.943		21.6	48	SN	3	C		51		U F
HOLL	26	2040	2041	2128	N10	W70	.943		21.6	48	SB	3	C		26		U F
PALE	26	2056	2059	2107	N10	W66	.918		21.9	11	SN	3	C		16		F
HOLL	26	2337	2337	2346	N11	W69	.938		21.8	11	SB	3	C		14		
MONT	27	0831	0834	0846	N17	E77	.978		2.1	15	SF		C	0834	50		D
TELV	27	1014	1016	1027	N13	E21	.427		29.0	13	SN	2	C		60	.6	
HOLL	27	1638	1639	1646	N16	E70	.947		1.9	8	SF	3	C		28		

Hα SOLAR FLARES

JUNE 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
┌MCMA	27	1639	1642	1647	N16	E70	.947	16104	1.9	8	SN		C	1642	40	1.3	E
BIGB	27	1824	1827	1841	S23	E90	1.000		3.5	17	SB	2	C	1827	40		
HOLL	27	1854	1855	1900	S26	W65	.921		22.9	6	SN	3	C		16		
BIGB	27	1948	1949	1958	S23	E90	1.000		3.6	10	SN	2	C	1949	30		
┌BIGB	27	2056	2106	2151	S29	W73	.964		22.4	55	SB	2	C	2106	100		
├HOLL	27	2058	2058	2129	S24	W69	.942		22.7	31	SN	3	C		22		F
└HOLL	27	2104	2107	2129	S28	W65	.923		23.0	25	SN	3	C		16		U F
ISTA	28	0746E		0756	S29	W75	.972	16085	22.7	10D	1F						D
MONT	28	0900	0902	0905	S24	E80	.986		3.4	5	SN		C	0902	100		
TELV	28	1020	1024	1034	N15	E20	.431		29.9	14	SN	2	C		61	.6	
TELV	28	1036	1041	1100	N17	W30	.569		26.2	24	SN	2	C		147	1.7	U
TELV	28	1114	1136	1148	N16	W30	.563		26.2	34	SN	2	C		98	1.0	K
┌HOLL	28	1404	1409	1441	S12	W17	.343		27.3	37	SN	3	C		80		F
├MCMA	28	1405	1408	1431	S12	W17	.343	16100	27.3	26	SN		C	1408	60	.7	E
└HUAN	28	1406		1424D	S13	W15	.325		27.5	18D	SF	1	C				E
HOLL	28	1411	1427	1503	N17	E75	.970		3.2	52	SN	3	C		0		
MCMA	28	1451	1455	1522D	N02	E74	.962	16111	3.2	31D	SF		C	1455	30	.9	E
HUAN	28	1543		1554	N03	E90	1.000		4.4	11	SF	1	C	1547	20		D
HOLL	28	1624	1624	1636	N19	E32	.607		31.1	12	SN	3	C		25		
HUAN	28	2114		2120	N15	E31	.569		31.2	6	SF	1	C	2118	10	.1	D
PALE	28	2146	2147	2156	N18	E32	.600		31.3	10	SN	3	C		21		F
PALE	29	0117	0127	0148	N18	E29	.564	16104	31.2	31	1B	3	C		208		U F
BIGB	29	0126	0128	0132E	N29	E24	.613		30.9	6D	SN	1	P	0128	80	.9	
HUAN	29	1323	1324	1326	S25	E68	.936		3.7	3	SN	1	C	1324	20		D
┌HUAN	29	1423		1432	N23	W62	.905		24.9	9	SF	1	C	1428	25	.9	D
└BIGB	29	1424	1426	1437	N22	W61	.897		25.0	13	SN	2	C	1426	60	1.3	
┌BIGB	29	1448	1450	1457	N15	E43	.713		1.8	9	SN	2	C	1450	50	.7	
└HOLL	29	1449	1450	1458	N14	E44	.721		1.9	9	SB	3	C		33		
┌BIGB	29	1738	1740	1802	N17	E43	.720		2.0	24	SN	2	C	1740	70	1.0	
└HOLL	29	1738	1738	1755	N17	E43	.720		2.0	17	SN	3	C		38		
┌BIGB	29	1820	1826	1837	N19	E64	.913	16108	3.6	17	1B	2	C	1826	90	2.1	
├HOLL	29	1823	1825	1835	N20	E64	.914		3.6	12	SB	3	C		69		DE
└HUAN	29	1823E		1829D	N20	E64	.914		3.6	6D	SN	1	P	1826	40		E
BIGB	29	1853	1854	1926	N18	E22	.482		31.4	33	SF	2	C	1854	30	.3	
BIGB	29	2137	2138	2144	N21	W50	.805		26.2	7	SN	2	C	2138	20	.3	
BIGB	29	2205	2208	2217	S26	E90	1.000		5.7	12	SN	2	C	2208	40		
┌BIGB	29	2236	2237	2244	N21	E58	.873		3.3	8	SB	2	C	2237	30	.6	
└HOLL	29	2236	2237	2242	N19	E58	.869		3.3	6	SB	3	C		36		
HOLL	29	2253	2255	2309	N16	E40	.682		2.0	16	SN	3	C		65		
BIGB	30	0006	0008	0024	N05	E53	.801		3.0	18	SN	2	C	0008	20	.3	
ISTA	30	0603		0625	S18	W29	.548	16100	28.1	22	1B						E
TELV	30	0949	0953	1006	N21	E90	1.000		6.2	17	SB	3	C				
HOLL	30	1835	1836	1844	N18	E45	.745		3.1	9	SB	3	C		42		
┌TELV	30	1850	1852	1900	S20	W32	.597		28.4	10	SF	1	C		75	.9	
├HUAN	30	1851		1855	S20	W35	.632		28.2	4	SF	1	C				E
└HOLL	30	1851	1852	1934	S19	W31	.579		28.5	43	SB	3	C		104		F
TELV	30	2212	2219	2240	N06	E49	.759	16111	3.6	28	1F	1	C		225	3.5	
HOLL	30	2213	2215	2238	N 4	E38	.620		2.8	25	SN	3	C		51		
HOLL	30	2249	2249	2307	N15	E26	.504		1.9	18	SF	3	C		25		
TELV	31	0744	0748	0755	N22	E90	1.000		7.1	11	SN	3	C				

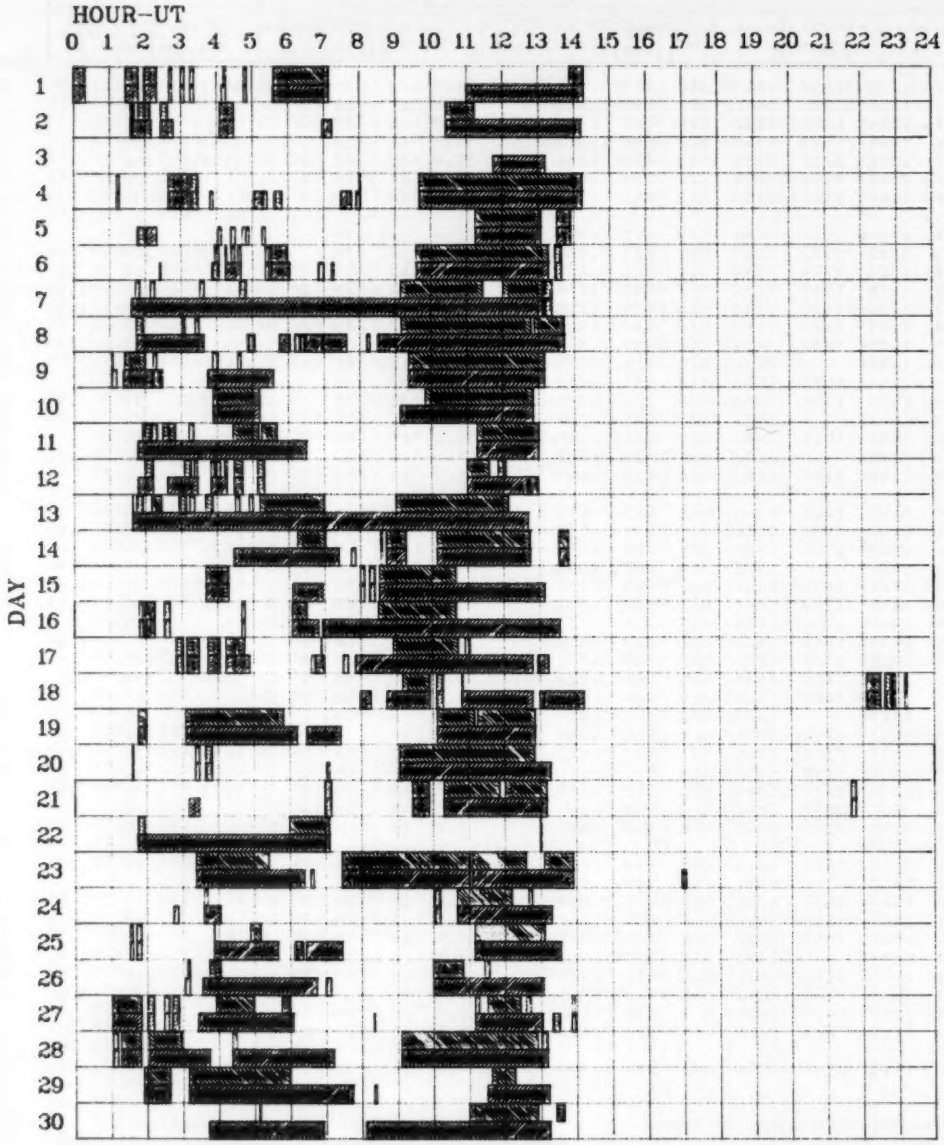
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JUNE 1979



Observatories included in total patrol:

Athenes	Holloman	Kandilli	Monte Mario	Wendelstein
Big Bear	Huancayo	Manila	Palehua	
Bucharest	Istanboul	Mitaka	Ramey	

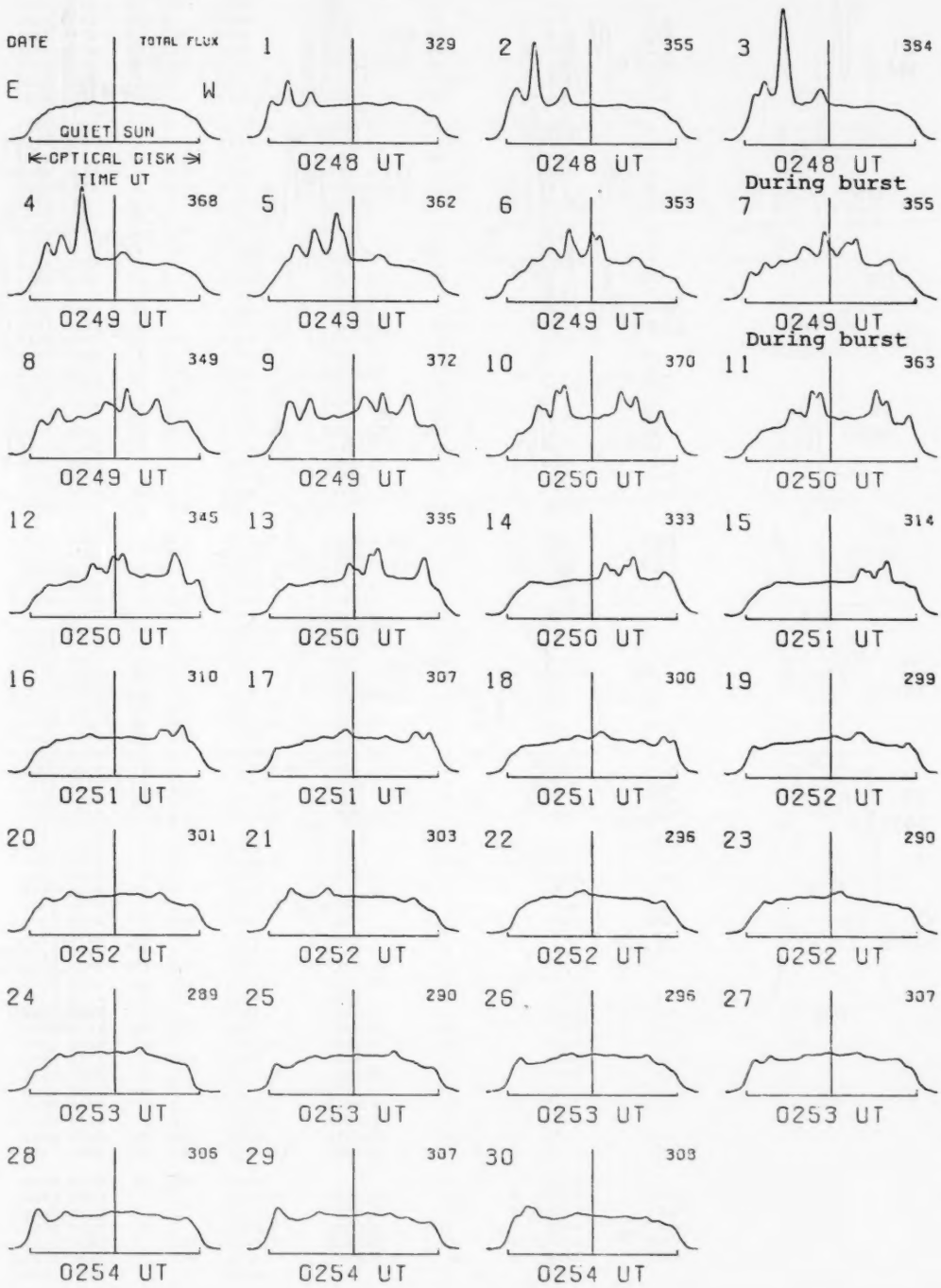
Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS

JUNE 1979

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

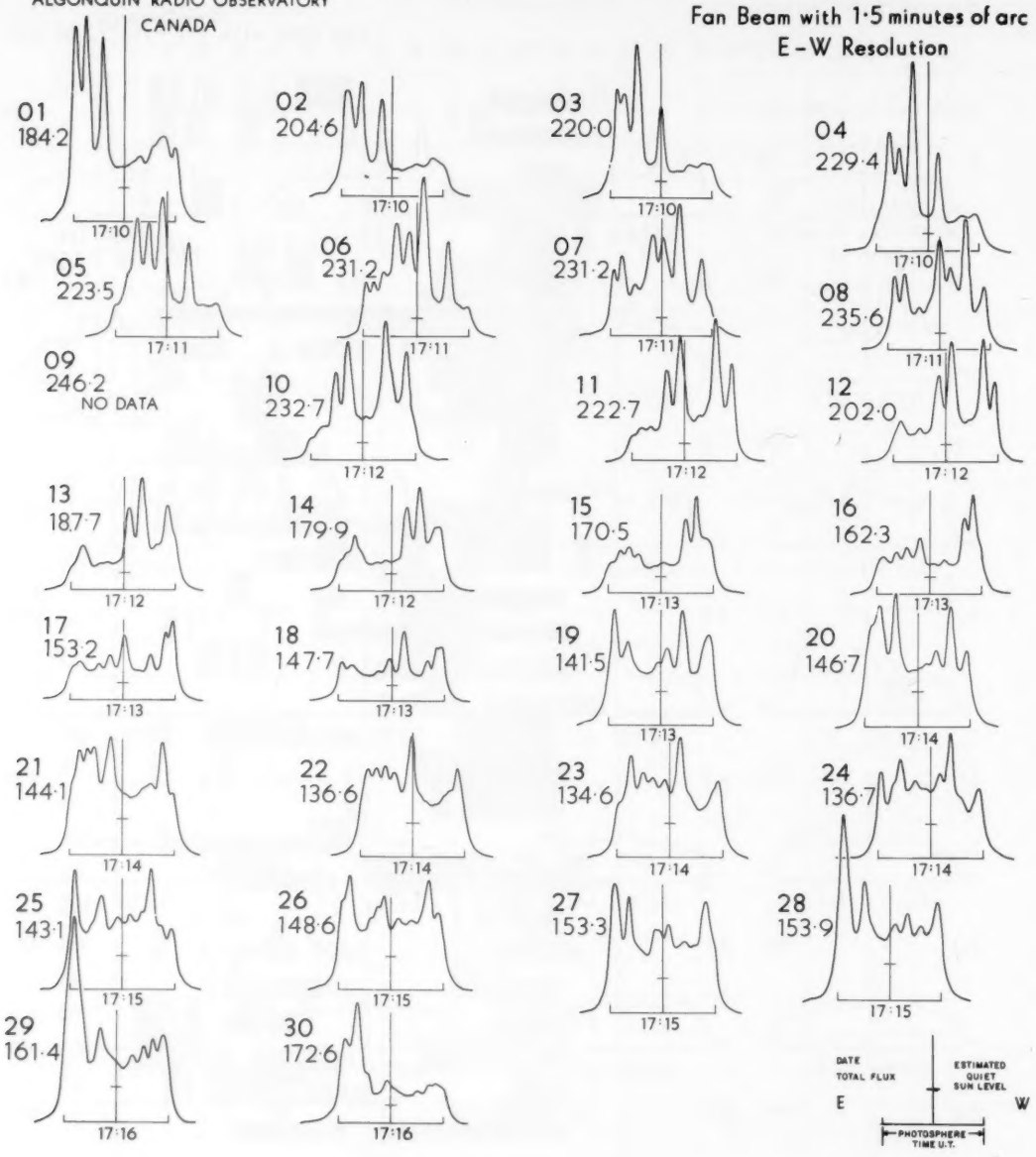


EAST-WEST SOLAR SCANS

JUNE 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22}Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	2800	OTTA	22 GRF	1240	1247	90	3.4	1.7		
	2800	OTTA	240 R	1440	1510	30	5.2	2.6		
	2800	OTTA	20 GRF	1545	1550	15	3.4	1.5		
	2800	OTTA	22 GRF	1646	1652	25	4.2			
	2800	OTTA	20 GRF	1815	1835	57	2.4	1.2		
	8800	SGMR	3 S	1834.8	1835.5	3.2	13.7	4.1		
	2800	OTTA	240 R	1920	1930	10	2.4	1.2		
2	2695	SGMR	3 S	1129.4	1132.9	4.1	29.9	9		5,CONT,SWF
	8800	SGMR	3 S	1130.9	1132.4	2.4	31.8	9.5		5,CONT,SWF
	2800	OTTA	21 GRF	1130	1136	65	5.6	2.8		
	2800	OTTA	4 S/F	1131	1132.3	3.5	17.8	6		
	2800	OTTA	4 S/F	1152.6	1152.6	1.5	30	8		
	2695	SGMR	45 C	1152.7	1153.1	7.3	23.9	7.2		3G
	2695	SGMR	45 C	1152.7	1158.4		17.3			3G
	2800	OTTA	4 S/F	1157.2	1158	2	14.4	7		
	2800	OTTA	21 GRF	1250	1415	310	18	9		
	2800	OTTA	1 S	1326	1328	6	5.8	2.9		
	8800	SGMR	3 S	1348.4	1349.2	3	197	59.1		
	2800	OTTA	3 S	1348.7	1349	5	36	9		
	2695	SGMR	3 S	1349	1349.5	2.8	29.1	11.6		
	2695	SGMR	3 S	1443.6	1449.3	11.4	122	37		3G,SWF
	2800	OTTA	28 PRE	1443	1444.5	3	6.8			
	8800	SGMR	3 S	1444.2	1448.9	10.3	186	56		3G,SWF
	2695	BOUL	28 PRE	1445 E	1447.5U	2.5D	6	2		
	2800	OTTA	4 S/F	1446	1449	8	99	39.2		
	2695	BOUL	45 C	1447.5E	1449.5	8 D	108	36		
	2800	OTTA	29 PBI	1454	1454	20	11.4	5.7		
	2695	BOUL	29 PBI	1455.5E	1455.5U	13 D	13	4		
	8800	SGMR	3 S	1558.2	1600	2.7	20	6		
	2695	SGMR	3 S	1600.2	1600.3	.3	18.5	5.6		
	2800	OTTA	1 S	1714.5	1717	7	8.4	2.8		
	2800	OTTA	240 R	1838	1845	7	3	1.5		
	2800	OTTA	20 GRF	2000	2040	180 D	9.6			
3	2695	MANI	S/F	0910.4	0913.8	4.9	2 78.7	26.2		
	8800	MANI	S/F	0913	0913.8	2.1	2 64.1	21.4		
	2800	OTTA	26 FAL	1050	1220	90	-9.6	-4.4		
	8800	SGMR	3 S	1245.8	1246.6	3.3	38.3	11.5		5
	2800	OTTA	2 S/F	1245	1246.8	4	4.6	2		
	2800	OTTA	20 GRF	1300	1312	70	4.6	1.5		
	8800	SGMR	47 GB	1432	1434.9	7.6	1570	471		5,SWF
	2800	OTTA	47 GB	1432.6	1434.5	6.4	632	130		
	2800	OTTA	21 GRF	1432	1520	495	17.6	7.6		
	2695	SGMR	47 GB	1433	1434.2	8	749	225		5,SWF
	2695	BOUL	28 PRE	1434 E	1435.5	1.5D	112	37		
	2695	BOUL	47 GB	1435.5E	1436	4 D	602	201		
	2695	BOUL	29 PBI	1439.5E	1439.5	6 D	41	14		
	2800	OTTA	29 PBI	1439	1439	5	8.4	4.2		
	2800	OTTA	3 S	1800	1800.1	2	10.6	2.6		
	2695	SGMR	3 S	2029.8	2030.7	2.7	28.8	86.4		5
	2800	OTTA	4 S/F	2029	2030.3	6	27.4	4.4		
	2695	BOUL	45 C	2030.5E	2031	8 D	130	43		
	2800	OTTA	1 S	2248.7	2249	1	5.4	2.7		
4	8800	MANI	S/F	0346	0401	17.5	4 320.4	106.8		
	2695	MANI	S/F	0346.9	0401	22.4	4 103.8	34.6		
	8800	SGMR	3 S	1038	1038.9	2.4	44.2	13.3		
	8800	SGMR	3 S	1221.5	1222.1	1.6	63	13		
	2800	OTTA	1 S	1354.7	1355	1.5	3.6	1.7		
	2800	OTTA	21 GRF	1545	1653	115	16.4	4.2		
	2800	OTTA	21 GRF	1558	1603	15	5	2.5		
	2800	OTTA	1 S	1601	1602	2	8.8	4.4		
	2695	BOUL	20 GRF	1601 E	1602.5U	2.5D	13	4		
	2695	BOUL	29 PBI	1603.5E	1606.5U	9 D	6	2		
	2800	OTTA	4 S/F	1654	1657	5	14.2	6.9		
	8800	SGMR	3 S	1801	1803.3	14	38.1	15.4		
	2800	OTTA	22 GRF	1942	1943.6	16	3.6	1.8		
	8800	SGMR	3 S	1950.6	1951.8	9.2	70.2	21.1		3S
	2800	OTTA	21 GRF	2214	2224	55	6.6	3.3		
	2800	OTTA	1 S	2217.2	2218.3	5	9.2	4.4		
	2695	BOUL	28 PRE	2218 E	2219 U	11 D	7	2		
	2695	MANI	S	2228.1	2229.3	3	3 31.1	10.1		
	2800	OTTA	3 S	2228	2229.3	6	17.8	7		
	2695	BOUL	20 GRF	2229 E	2230.5	3.5D	35	12		
	2695	BOUL	29 PBI	2232.5E	2232.5	13 D	14	5		
5	2695	PENT	21 GRF	0030		76 D	12.6			
	8800	MANI	S	0123.5	0126.2	4.9	3 258.3	86.1		
	2695	MANI	S	0124.1	0126.6	3.9	3 27.7	9.2		
	2695	PENT	3 S	0124.5	0126.2	13	20.4	6.8		
	8800	MANI	S/F	0143.5	0149.3	13.7	4 177.1	59		
	2695	MANI	S/F	0144	0145.7	4.1	4 58.8	19.6		
	2695	PENT		0144	0146	2 D	53			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2695	MANI	4 GB	0502	0533.7	72	7 4400	1600		
	8800	MANI	4 GB	0503	0533.7	71	7 4400	1500		
	2800	OTTA	240 R	1200	1215	15	3.4	1.7		
	2800	OTTA	240 R	1305	1310	5	2	.8		
	2800	OTTA	20 GRF	1311	1315.5	45	6.4	3.2		
	2800	OTTA	3 S	1537.6	1538.5	2.4	15.2	7.6		
	2695	SGMR	3 S	1537.8	1548.8	24.5	94.7	37.9		3G
	2800	OTTA	240AR	1537	1640	63	5			
	8800	SGMR	3 S	1538.8	1549	21.4	22.2	8.9		3G
	2695	BOUL	21 GRF	1538 E	1539.5	3 D	27	9		
	2800	OTTA	30 PBI	1540	1540	25	7.4	3.7		
	2800	OTTA	4 S/F	1547.5	1548.6	4.5	50	13		
	2695	BOUL	45 C	1548 E	1549.5	4.5D	113	38		
	2800	OTTA	21 GRF	1925	2104	165	6.4	3		
	2800	OTTA	1 S	2037.4	2038	5	3.2	1.6		
6	2695	PENT	3 S	0024.4	0025.5	2.6	18.8	9.4		
	2695	PENT	29 PBI	0027	0027	20	7.4	3.6		
	2695	BOUL	20 GRF	0028 E	0030	6 D	13	4		
	2695	BOUL	29 PBI	0034 E	0034	36 D	6	2		
	2695	MANI	S	0355.3	0355.5	1.7	3 31.8	10.6		
	2695	SGMR	13 S	1409.4	1409.8	7.6	87.5	26.3		
	2695	SGMR	13 S	1409.4	1415		19.4			
	2800	OTTA	21 GRF	1430	1440	80	4.4	2.4		
	2800	OTTA	1 S	1433	1434.5	3	3.8	1.9		
	2800	OTTA	21 GRF	1800	1810	60	3.4	1.7		
	2800	OTTA	1 S	1805	1807	4	4.4	2.2		
	2800	OTTA	21 GRF	2000	2050	130	7.6	3.8		
	2695	SGMR	3 S	2105.1	2109.8	16.2	220	44		SWF
	2695	BOUL	28 PRE	2106 E	2107.5U	2.5D	14	5		
	8800	SGMR	3 S	2107.2	2109.3	12.8	303	61		SWF
	2800	OTTA	4 S/F	2137	2109.7	15	204	65		
	2695	BOUL	45 C	2108.5E	2110.5	7.5D	224	75		
	2695	BOUL	29 PBI	2116 E	2116	10 D	35	12		
7	2800	OTTA	20 GRF	1140	1200	35	4	2		
	2800	OTTA	3 S	1311.5	1312	2.5	17.8	4.5		
	2695	SGMR	3 S	1312.2	1312.5	1	24.3	7.3		3G
	2800	OTTA	20 GRF	1340	1420	80	13.2	8.8		
	2800	OTTA	240 R	1505	1530	25	8	6		
	2800	OTTA	20 GRF	1705	1755	135	9.2	5		
	2695	PENT	23 GRF	2240	2340	115	8.8	3.8		
	2695	PENT	1 S	2324	2325	6	5.6	2.6		
	2695	MANI	S	2334.2	2339.1	7.1	1 10.8	3.6		
	8800	MANI	S/F	2334.4	2336	6	4 96.7	32.2		
	2695	PENT	1 S	2334	2337	5	9.4	6.6		
8	2695	MANI	S	0419	0420.3	3	3 12.6	4.2		III
	8800	SGMR	3 S	1048.2	1051.1	4.4	21.2	6.4		
	2695	SGMR	1 S	1050.6	1051.4	7.5	6.9	2.1		
	2800	OTTA	27F RF	1128		172	3.6	3		
	2800	OTTA	24 R	1128	1135	7	3.6	1.8		
	2800	OTTA	24P R	1135		120	3.6			
	2800	OTTA	26 FAL	1335	1420	45	-3.6	-1.8		
	2800	OTTA	3 S	1501.9	1502.9	2.5	17.4	5.8		
	8800	SGMR	3 S	1502.2	1502.8	1.6	71	14		3G,SWF
	2695	SGMR	3 S	1502.7	1503.1	1.3	20	4		3G,SWF
	2800	OTTA	240 R	1645	1652	7	4.6	2		
	2800	OTTA	27 RF	1825		135	4	3.5		
	2800	OTTA	24 R	1825	1840	15	4	2		
	2800	OTTA	24P R	1840		100	4			
	2800	OTTA	26 FAL	2020	2040	20	-4	-2		
	2800	OTTA	21 GRF	2120	2227	130	8.8	3.5		
	2800	OTTA	3 S	2132	2134.5	4	10.8	6		
	2800	OTTA	29 PBI	2136	2136	30	4.6	3.6		
	8800	SGMR	3 S	2157.7	2158.6	2.3	27.1	8.1		
	2800	OTTA	22 GRF	2231	2241	17	10	4.3		
	2800	OTTA	1 S	2306	2300.5	1	4	2.2		
	2695	PENT	20 GRF	2356		110 D	19.4			
9	2800	OTTA	21 GRF	1440	1640	170	8.4	4.4		
	2800	OTTA	8 S	1624.8	1624.9	.6	9.8	4.6		
	2800	OTTA	26 FAL	1740	1835	55	-6.2	-3.1		
	2800	OTTA	240 R	1910	1940	30	4.8	2.4		
	2800	OTTA	22 GRF	2155	2240	180	15.2	6		
10	2695	MANI	S/F	0848.2	0900.9	17.8	4 21.6	7.2		
	8800	MANI	S/F	0852.5	0903.9	13.7	4 198.9	66.3		
	2800	OTTA	26 FAL	1140	1230	50	-5.8	-3		
	2695	PENT	2 S/F	1412.5	1414	3	8.2	3		
	2800	OTTA	22 GRF	1450	1507	50	6.2	3.1		
	2800	OTTA	4 S/F	1757	1800.7	9	39.6	19.6		
	8800	SGMR	3 S	1758.4	1800.7	12.1	38.2	11.5		
	2695	SGMR	3 S	1758.5	1801	8.8	48.6	14.6		
	2695	BOUL	20 GRF	1758.5E	1801	8 D	32	11		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2695	BOUL	29 PBI	1806.5E	1806.5U	22 D	12	4		
	2800	OTTA	29 PBI	1806	1806	70	13.6	4.6		
11	2800	OTTA	23 GRF	1125	1253	130	10.6	3.6		
	8800	SGMR	3 S	1219.7	1225.2	25.3	263	78.9		4,5,SWF
	2800	OTTA	3 S	1223.5	1225	4.5	73.8	18.4		
	2695	SGMR	3 S	1224	1225.6	3.6	87.1	26.1		4,5,SWF
	2800	OTTA	29 PBI	1228	1228	12	4.8	3		
	2800	OTTA	3 S	1243	1244.1	4	16.6	8		
	2800	OTTA	8 S	1751.4	1751.4	.1	8.6			
	2800	OTTA	1 S	2252	2253.5	3	2.4	1.2		
12	2695	MANI	S/F	0647	0649	2.8	4 152.9	51		
	8800	MANI	S/F	0648.5	0649.2	1.5	4 216.5	72.2		
	2800	OTTA	20 GRF	1127	1133	28	2.6			
	2800	OTTA	21 GRF	1200	1240	65	4.4	2.2		
	2800	OTTA	1 S	1229.5	1231	3.5	4.6	2.3		
	2800	OTTA	26 FAL	1710	1750	40	-3.6	-1.8		
	2800	OTTA	20 GRF	1822	1826	38	9.8	4.4		
	2800	OTTA	32 ABS	1905	1920	35	-3.2	-1.6		
	2800	OTTA	1 S	2112.8	2113.3	2.5	8.4	4.2		
	2695	PENT		2112.8	2113.3	2.5				
	2695	PENT	22 GRF	2305	2410	145	13.2	4.4		
13	2800	OTTA	20 GRF	1110	1122	40	2.6	1.3		
	2800	OTTA	20 GRF	1453	1510	45	4.2	2.1		
	2800	OTTA	20 GRF	1617	1630	30	4.6	2.4		
	2695	PENT	20 GRF	2305	2348	110	8.4	2.8		
14	2800	OTTA	20 GRF	2110	2127	110	2.6	1.5		
15	2800	OTTA	20 GRF	1615	1623	20	2.4	1.2		
	2800	OTTA	1 S	2126	2127.5	4	2.4	1		
16	2695	BOUL	40 F	1317 E	1318.5	10.5D	15	5		
	2695	PENT	26 FAL	1725	1750	25	-3.2	-1.6		
	2695	PENT	24 R	1805	1810	5	3.2	1.4		
	2695	PENT	27A RF	1805		80	3.2	2.7		
	2695	PENT	24P R	1810		55	3.2			
	2695	PENT	1 S	1830	1833	10	3.2	1.6		
	2695	PENT	26 FAL	1905	1925	20	-3.2	-1.6		
	2695	PENT	24O R	2130	2200	30	3	1.5		
	2695	PENT	20 GRF	2225	2250	80	7.4	3.7		
17	8800	MANI	S	0057.2	0057.4	.6	3 323.1	107.7		
	2800	OTTA		1330		70 D	7.6			
	2800	OTTA	1 S	1746.5	1747.5	2.5	4.4	1.8		
	8800	SGMR	3 S	1748.4	1749	2.6	26.5	8		
	2800	OTTA	1 S	1850	1850.4	1	2.6	1.3		
18	8800	MANI	S/F	0622.5	0624.5	4	4 31.2	10.4		
	2695	MANI	S/F	0623	0623.5	4	4 32.7	10.9		
	2800	OTTA	1 S	1728	1729	4	3	1.5		
	8800	SGMR	3 S	1810.1	1812.2	5.2	21.1	6.3		5
	2695	SGMR	3 S	1810.8	1811.8	4.5	19	5.7		5
	2800	OTTA	4 S/F	1810	1811.5	6	30	7.4		
	2695	BOUL	45 C	1811 E	1812.5	3 D	15	5		
	2695	BOUL	29 PBI	1814 E	1814	3.5D	10	3		
	8800	SGMR	45 C	2055.7	2057.8	16	18.3	7.6		5
	2695	PENT	45 C	2055	2057.8	8	21.6	7.6		
	2695	SGMR	3 S	2056.3	2057.7	14.4	21.9	6.6		5
	2695	BOUL	3 S	2056.5E	2058.5	3 D	10	3		
	2695	BOUL	29 PBI	2059.5E	2059.5U	3 D	5	2		
	2695	PENT	29 PBI	2103	2103	65	3.2	1.6		
	8800	SGMR	45 C		2104.3		25.3			5
19	2800	OTTA	1 S	1306	1307.5	2	4.8	2.4		
20	2800	OTTA	20 GRF	2014	2105	160	3	1.8		
	2695	PENT	1 S	2357.8	2358.2	2.2	1.8	.9		
21	2800	OTTA	1 S	1818.7	1819.1	3	3.2	1.1		
	2800	OTTA	20 GRF	2130	2155	30	1.6	.8		
	2695	PENT	20 GRF	2240	2350	120	3.2	1.6		
24	2800	OTTA	8 S	1528.9	1528.9	.1	11.4			
	2800	OTTA	20 GRF	1730	1815	90	2.2	1.1		
25	2800	OTTA	20 GRF	2113	2114.5	18	4	1.3		
26	8800	SGMR	3 S	1018	1019.8	7.1	133	39.9		
	2695	SGMR	3 S	1018.5	1020.3	5.7	67.6	20.3		
	2800	OTTA	21 GRF	2040	2058	45	2.2	1.1		
	2800	OTTA	1 S	2049.5	2050.5	4.5	7.2	3		
27	2695	PENT	21 GRF	0035	0117	75 D	8.6			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

JUNE 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695	PENT	3 S	0115	0115.8	1.5	33.6	13.4		
	2695	BOUL	8 S	0116 E	0117	1.5D	26	9		
	2695	BOUL	1 S	1631 E	1631.5	1 D	5	2		
	2800	OTTA	20 GRF	2040	2106	80	3.8	1.6		
28	2800	OTTA	20 GRF	1815	2125	275	4.6			
	2695	BOUL	4 SF	1917.5E	1918	1 D	20	7		
29	2695	PENT	1 S	0124	0128	9	5.4	2.4		
	2800	OTTA	20 GRF	1410	1450	100	4.8	2.4		
	8800	SGMR	3 S	1822.9	1824.1	3.3	101	30.3		SWF
	2800	OTTA	1 S	1823.9	1824.1	2	9.8	3.3		
	2695	SGMR	1 S	1824	1824.7	3	9.3	2.8		SWF
	2695	BOUL	3 S	1824.5E	1825	4 D	15	5		
	2800	OTTA	20 GRF	1850	1853	24	2.4	1.2		
30	2800	OTTA	240 R	1214.5	1215	.5	2.6	1.3		
	8800	SGMR	3 S	1214.7	1215.8	2.4	41.3	12.4		SWF
	2800	OTTA	4 S/F	1215.5	1216	2	38.6	13		
	2695	SGMR	3 S	1215.8	1216.3	1.2	36.2	10.9		SWF
	2800	OTTA	8 S	1305.6	1305.8	.7	2	1		
	2800	OTTA	21 GRF	1430	1535	205	5.8	3		
	2800	OTTA	2 S/F	1534.5	1535.1	3	2.6			
	2695	BOUL	23 GRF	1609.5E	1610.5	4 D	11	4		
	2800	OTTA	4 S/F	1619	1619.7	1	12.4	6.2		
	2800	OTTA	1 S	1726	1726.7	1	1.4	.7		
	2800	OTTA	21 GRF	1810	1950	190	2.6	1.3		
	2800	OTTA	1 S	1834.5	1835.8	3	5.8	2.8		

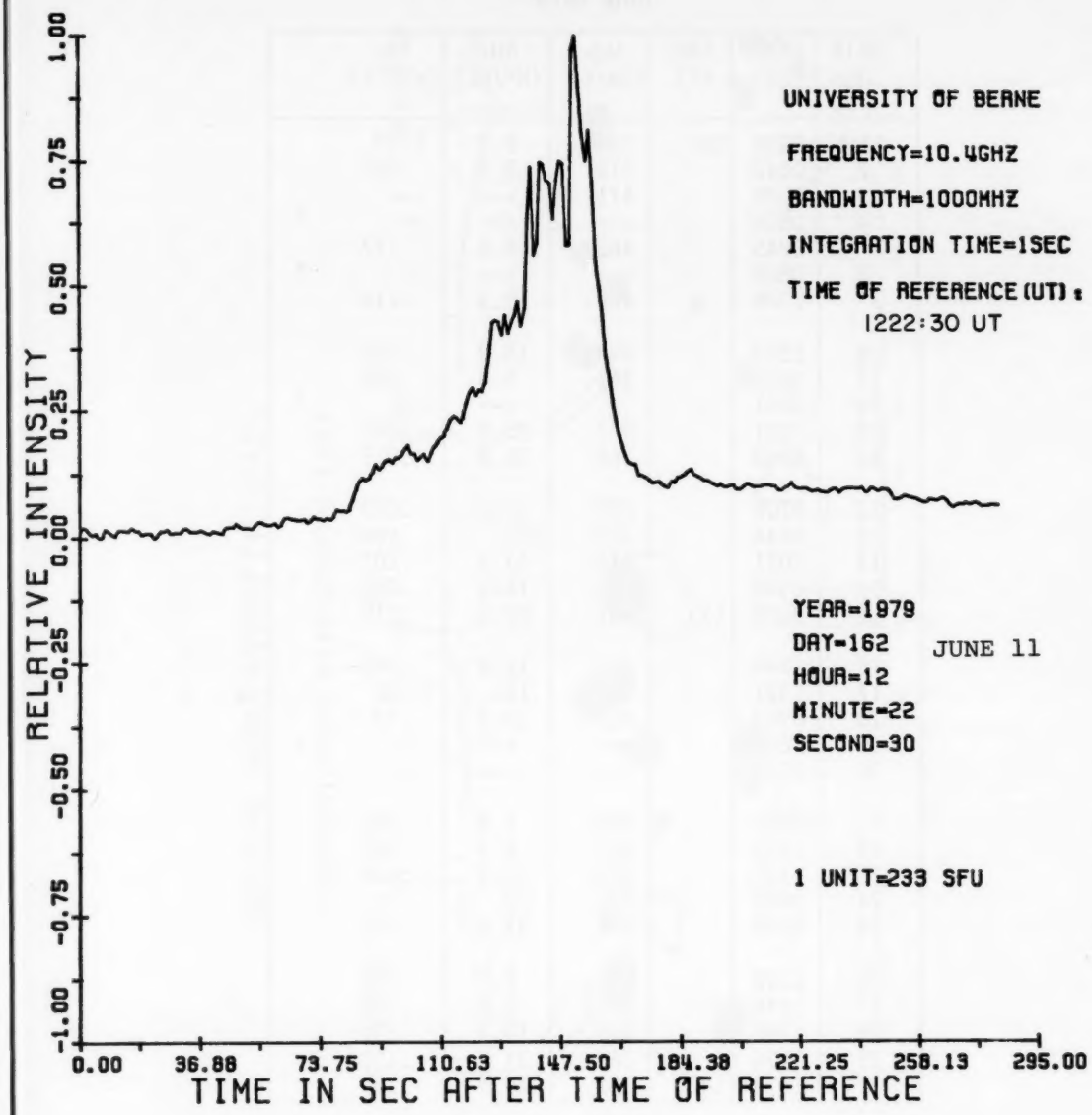
Observatories:

BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

1 Simple 1	6 Minor	22 Simple 3F	27 Rise and Fall	32 Absorption	44 Noise Storm in Progress
2 Simple 1F	7 Minor +	23 Simple 3AF	28 Precursor	40 Fluctuation	45 Complex
3 Simple 2	8 Spike	24 Rise	29 Post Burst Increase	41 Group of Bursts	46 Complex F
4 Simple 2F	20 Simple 3	25 Rise A	30 Post Burst Increase A	42 Series of Bursts	47 Great Burst
5 Simple	21 Simple 3A	26 Fall	31 Post Burst Decrease	43 Onset of Noise Storm	48 Major
					49 Major +

SELECTED SOLAR NOISE BURST
JUNE 1979



PIONEER XII

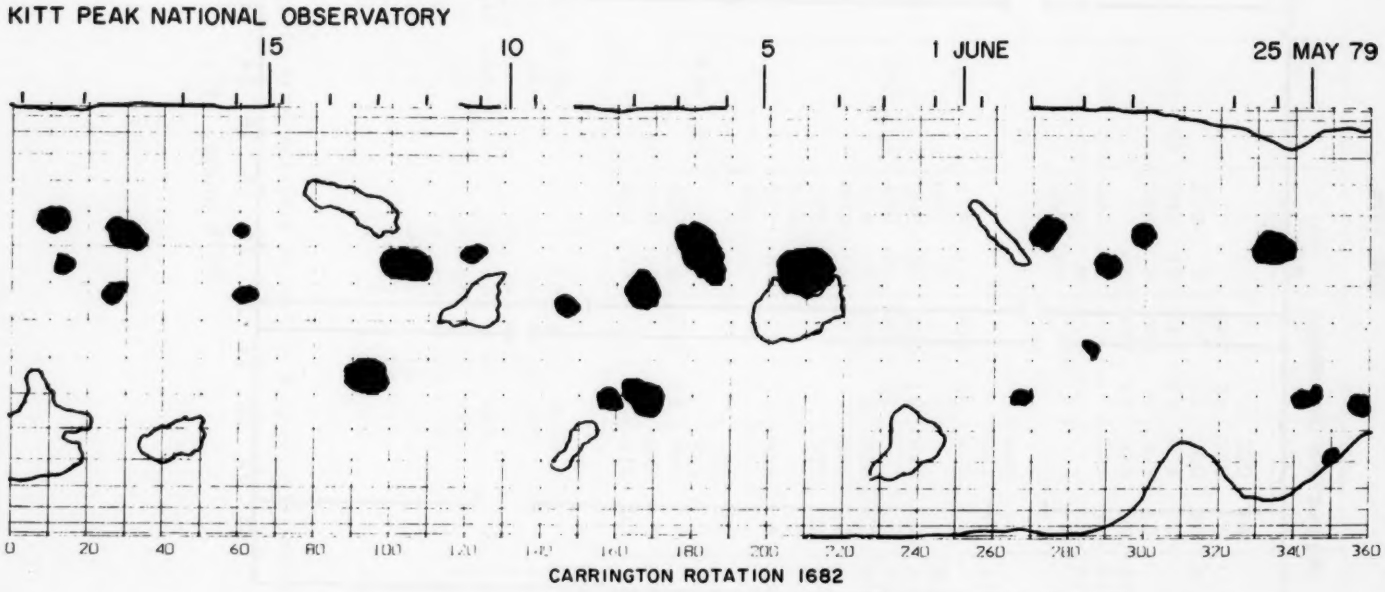
JUNE 1979

DATE Jun '79	TIME (UT)	ESV (°)	U_{H+} (Km/s)	N_{H+} (H^+/CC)	T_{H+} ($x10^6$k)	
1	0250	124.	504.	9.3	0.17	
2	0642		416.	9.9	.087	
3	0600		471.	---	---	
4	0356		---	---	---	*
	2245		462.	14.6	.177	
5	0806		---	---	---	*
	2306		426.	12.3	.116	
6	2343		399.	15.9	.102	
7	0905		361.	8.6	.104	
8	2251		---	---	---	*
9	2231		272.	25.5	.044	
10	0958		264.	21.8	.075	
11	0706		259.	42.8	.029	
12	0644		329.	161.	.104	
13	2021		276.	43.3	.202	
14	0505		310.	76.1	.099	
15	0509	133.	401.	22.5	.219	
16	2344		474.	12.9	.269	
17	2321		490.	14.	.22	
18	0903		414.	10.3	.13	
19	1834		---	---	---	*
20	0510		---	---	---	
21	0947		493.	7.8	.281	
22	1200		363.	8.3	.069	
23	1150		325.	13.3	.038	
24	0952		360.	29.	.07	
25	0902		401.	33.5	.292	
26	1202		428.	6.7	.271	
27	1246		399.	8.8	.132	
28	1305		355.	10.7	.244	
29	1136		361.	31.4	.118	
30	1514	142.	352.	29.4	.167	

*NOTE--These parameters are developed from real time data which provide a limited number of instrument samples. Because the plasma variation, at times, exceeds the instrument cycle, the confidence in the developed parameters is somewhat low and therefore not reported.

HELIUM 10830Å SYNOPTIC MAPS

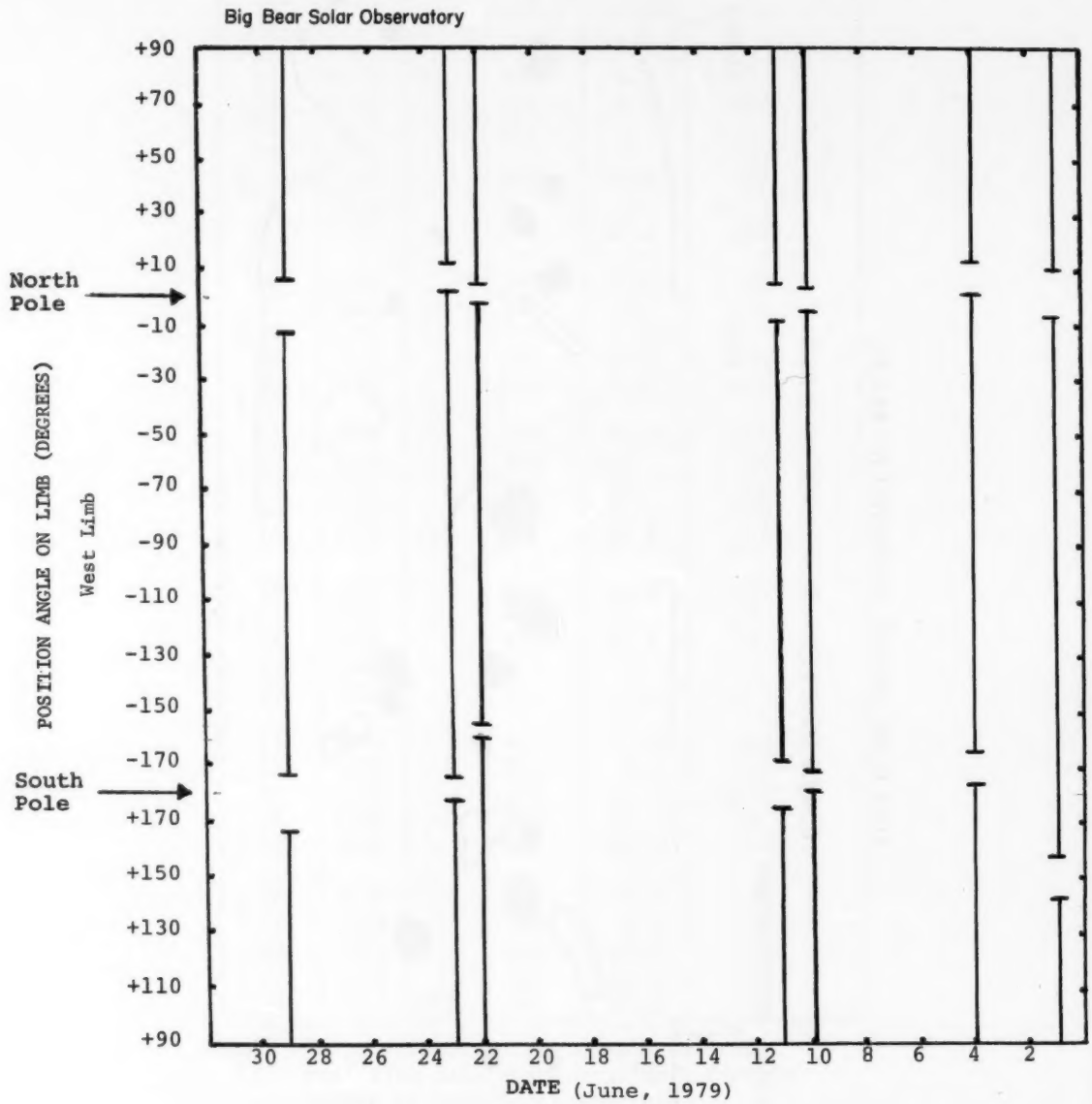
CARRINGTON ROTATION 1682



CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

JUNE 1979



SOLAR WIND

Interplanetary Scintillations

JUNE 1979

DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1	368	39									320	94				
2									278	26	355	5				
3	321	9					270	9	271	42	380	32	321	52	297	16
4	306	4			325	45	385	10	263	21	291	22			300	24
5	286	5					325	6	328	8	339	15				
6	383	7							430	13	326	3	348	3	291	3
7	380	6					347	7			841	26	478	11	462	7
8	285	28					320	8					517	56		
9							363	100								
10	431	40														
13											420	13				
14	429	24									261	53	453	7		
15	292	39					413	13	309	20	422	7				
16	339	5					388	7					423	36		
17	403	36					388	52	352	18	445	7	388	30	346	28
18	350	4			370	6	492	21	381	31			410	17	372	10
19	366	7					514	7	406	8	368	29	355	9	351	16
20	357	*					473	6			324	42				
21	439	13					500	26			395	4	335	20		
22	365	7					554	17					403	19		
23	449	21					579	64			454	4	349	22	393	44
25							421	17								
26	309	13									330	16				
27	276	4			534	96					322	5	393	21		
28	329	4					423	6	233	16	440	*				
29	347	16					332	36			326	4	368	24		
30	268	7					268	11			316	20	343	10		

JUNE	5 UT	LAT	DIST	DLON	15 UT	LAT	DIST	DLON	25 UT	LAT	DIST	DLON
3C48	17.	26.	0.70	38.	16.	20.	0.80	32.	16.	16.	0.88	25.
3C144	21.	-15.	0.16	-81.	20.	-54.	0.03	86.	19.	0.	0.18	80.
3C147	20.	49.	0.48	-42.	19.	62.	0.45	-22.	19.	63.	0.46	16.
3C161	22.	-45.	0.59	-32.	22.	-54.	0.52	-22.	21.	-58.	0.49	1.
3C237	2.	-3.	0.97	-17.	1.	-3.	0.92	-23.	0.	-4.	0.84	-32.
3C273	4.	0.	1.14	-14.	3.	0.	1.10	-15.	2.	1.	1.05	-17.
3C298	6.	3.	1.22	-10.	5.	4.	1.19	-12.	4.	5.	1.16	-13.
3C459	14.	4.	1.01	17.	14.	5.	1.06	16.	13.	6.	1.10	15.

*Indicates data for which no error estimate is available since only two antennas were operating.

INFERRED IP MAGNETIC FIELD

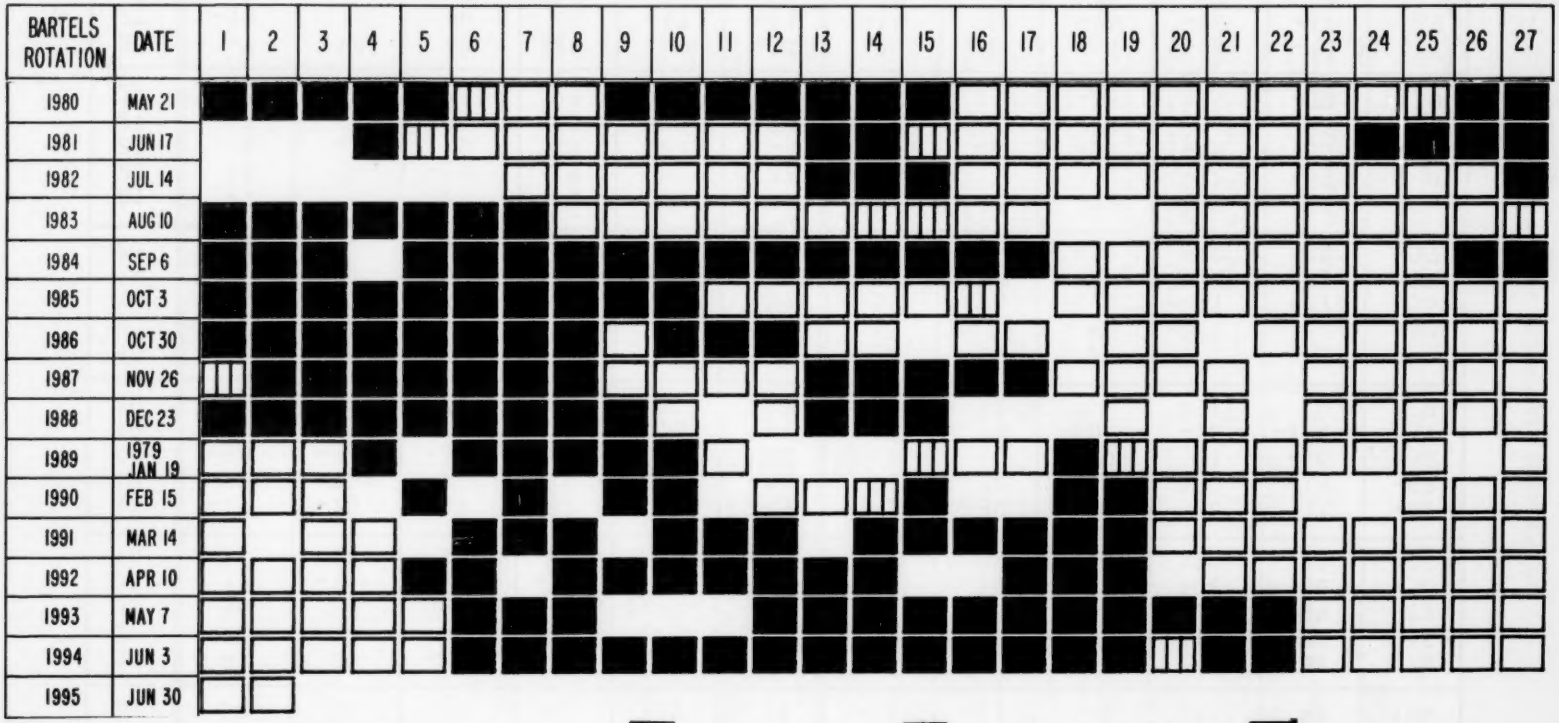
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1978	APR 2							*	-		AT											AT	AT					
1979	APR 29		TA		*		TA	AT	AT	TA		-	-	T*						TA	TA			AT				
1980	MAY 26				TA			AT	AT				-			AT	TA					-				-	-	-
1981	JUN 22	TA						A*					-	TA	TA		AT			*				*	AT	AT	-		AT		
1982	JUL 19									TA									-		TA				AT	AT	*		TA		
1983	AUG 15					TA			AT		AT	AT		AT	TA							A*						TA		
1984	SEP 11				TA	AT				TA	T*						A*		-					-			A*	TA	-	
1985	OCT 8	*	TA		T*		AT				-	-	-						TA	TA	-		AT		-					
1986	NOV 4		-				-	AT	-		-	-						*	AT		-		AT		AT		AT				
1987	DEC 1	AT	AT	-			-		-		-	TA	-		-	AT	-	-	AT	-	TA	-	-	A*	-			*	-	AT	-	-	
1988	DEC 28		-	-	-	-			-	AT	*		TA	TA	T*			-	AT	-	-	TA				-	TA	-			-	TA		-
1989	1979 JAN 24		-			*		TA				TA	TA								*					-			AT		
1990	FEB 20		TA		-	TA	-				-	TA	-	TA			TA	A*		TA	A*	TA	A*					A*				
1991	MAR 19		AT			AT		T*							*	-		-	-	TA	-		AT		T*	TA		TA	-		A*	-			TA	A*
1992	APR 15		A*	TA	T*	AT		TA	TA			T*					TA		*		-	-	AT	-	TA					A*			-	TA	
1993	MAY 12									-		-	AT					TA					AT	AT							-	-		-	-
1994	JUN 8	TA	TA	A*		TA					-	AT		-						T*	-		TA			TA	T*							

= definitely towards the sun = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1978						1979					
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
01	1	40	26	-11	-18	-72	11	.	-36	-4	26	41
02	13	39	32	-20	-21	-39	.	-1	.	16	13	82
03	15	42	15	-14	-36	-7	15	30	.	57	6	137
04	18	39	18	-8	-28	17	-6	27	-24	44	10	115
05	24	31	2	-3	-19	19	-25	-13	-6	11	45	104
06	43	29	-24	-7	-12	9	-26	1	46	9	68	78
07	42	30	-12	-20	3	5	.	50	64	14	101	15
08	36	17	-7	-29	-6	-15	.	88	56	67	134	-27
09	16	-11	.	-37	-17	-26	.	59	.	102	126	-50
10	-11	-10	-35	-29	-3	-37	27	39	.	124	75	-76
11	-17	-15	-34	-32	5	-19	.	40	21	138	31	-82
12	-12	-22	-42	-14	9	-16	27	30	63	100	-13	-52
13	-38	-33	-36	2	.	13	.	.	100	51	-66	-52
14	.	-43	-27	7	16	31	45	78	106	-12	-104	-37
15	.	-31	-26	8	20	43	21	62	.	-51	.	-28
16	.	-9	-36	9	.	65	36	27	24	.	.	-42
17	.	5	-48	5	34	.	48	6	45	-121	.	-43
18	.	13	-44	-1	42	59	59	.	.	-117	-27	-35
19	.	7	-50	.	.	30	37	-52	-56	-72	-29	-32
20	23	7	-33	4	55	18	18	.	-81	-40	-36	-37
21	21	5	-21	3	35	32	9	-86	-81	-27	-34	-24
22	16	4	-14	19	40	27	-15	.	.	-32	-43	0
23	6	-1	5	20	28	-3	.	-80	-51	-40	-56	-7
24	3	1	31	25	27	-20	-54	-52	-41	.	-51	-7
25	3	5	43	23	18	-26	-64	.	-28	.	-30	10
26	-7	18	42	24	2	-32	-70	19	.	-99	-16	17
27	-13	.	40	29	-17	-63	-64	10	-29	-92	-17	29
28	-6	.	29	30	-48	-51	-27	0	-36	-57	-4	47
29	14	41	15	17	-61	-36	12		-12	.	19	64
30	27	41	2	-3	-65	-22	.		-26	3	10	93
31	33	35		-16		-21	.		-28		9	

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

JUNE 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
01			No distinctive SS activity.
02	0420	East	Weak SS
	1015	West	Weak SS
03	1435		Weak, localized SS; Norman to Ft. Yukon to Inuvik
04	0510	East	Weak SS
05			Quiet Day
06			Very marked SSC at 1927 UT followed by Magstorm
07			Magstorm continues through 0800 UT. Field became very active after 1345 UT. Variable responses through network.
08			Field unsettled throughout the day.
	0210	East	Weak SS.
	0620		SS occurred along oval stations only.
	1355		Weak SS
09			Field unsettled throughout the day.
	0350	East	1st of double SS
	0425	East	2nd of double SS
	0855	West	1st of double SS
	0950	West	2nd of double SS
	1950		Strong response north of Cape Parry and north of Rankin Inlet. Moderate response midlatitude. Little or no response along auroral oval.
10			Field unsettled throughout the day.
	0425	East	
	0705	West	
	0935	West	
	1500		
11			Field unsettled throughout the day.
	0300	East	Weak SS
	0650		Weak SS, slow onset
	0825	West	Weak SS
12	0435	East	Weak SS, slow onset
	0505	East	Weak SS
13			Field unsettled after 1200 UT. No distinctive SS activity.
14			Occasional minor perturbations. No significant activity.
15	0715	East	Field remained unsettled after 0715 UT with no distinctive SS activity.
16			Field unsettled throughout the day.
	0100	East	Weak SS, slow onset
	0125	East	Weak SS, sharp onset
	0350	East	
	0740	West	
17	0310	East	
	1100		Localized SS central Alaska
	1405		Slow onset of multiple injections lasting through 1840 UT. Strongest injection at 1505 UT.
18			Few minor perturbations. No significant activity.
19	0350	East	Weak SS
	0830	West	Weak SS
20			Field slightly unsettled. No distinctive SS activity.
21			Field unsettled after 0400 UT.
	1115		Slow onset. Sharp onset (1200 UT) at Eskimo Pt. - Rankin Inlet and at Artic Village - Inuvik where SS was strongest. SS effect not discernible at mid and low latitudes. Field remained active balance of the day.
22	0045	East	Boulder in partial ring current sector.
	0700	West	
	1150	West	Field remained active balance of the day.
23	0850	West	Slightly active field throughout the day.
	0925	West	
24	0415	East	Several injections into existing SS.
	0710	West	
25	0515	East	1st of double onset
	0535	East	2nd of double onset
	1025	West	1st of double onset
	1050	West	2nd of double onset
26	0555	East	Weak SS eastward of Ft. Simpson
	1035	West	
	1435		
	1555		Field remained active balance of the day.
27	0135	East	Slow onset
	0650	West	Slow onset
	0835	West	Slow onset
	1225	West	Slow onset
	1315	West	Series of injections maintained SS profile through 1730 UT.
28			Quiet day
29	1100		Localized SS from College to Artic Village
	1625		Slow onset starting at Artic Village, slow expansion Northward to Johnson Point
30	0455	East	Weak SS

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

SGD 419 Part I (Prompt)

MAY 1979 DATA

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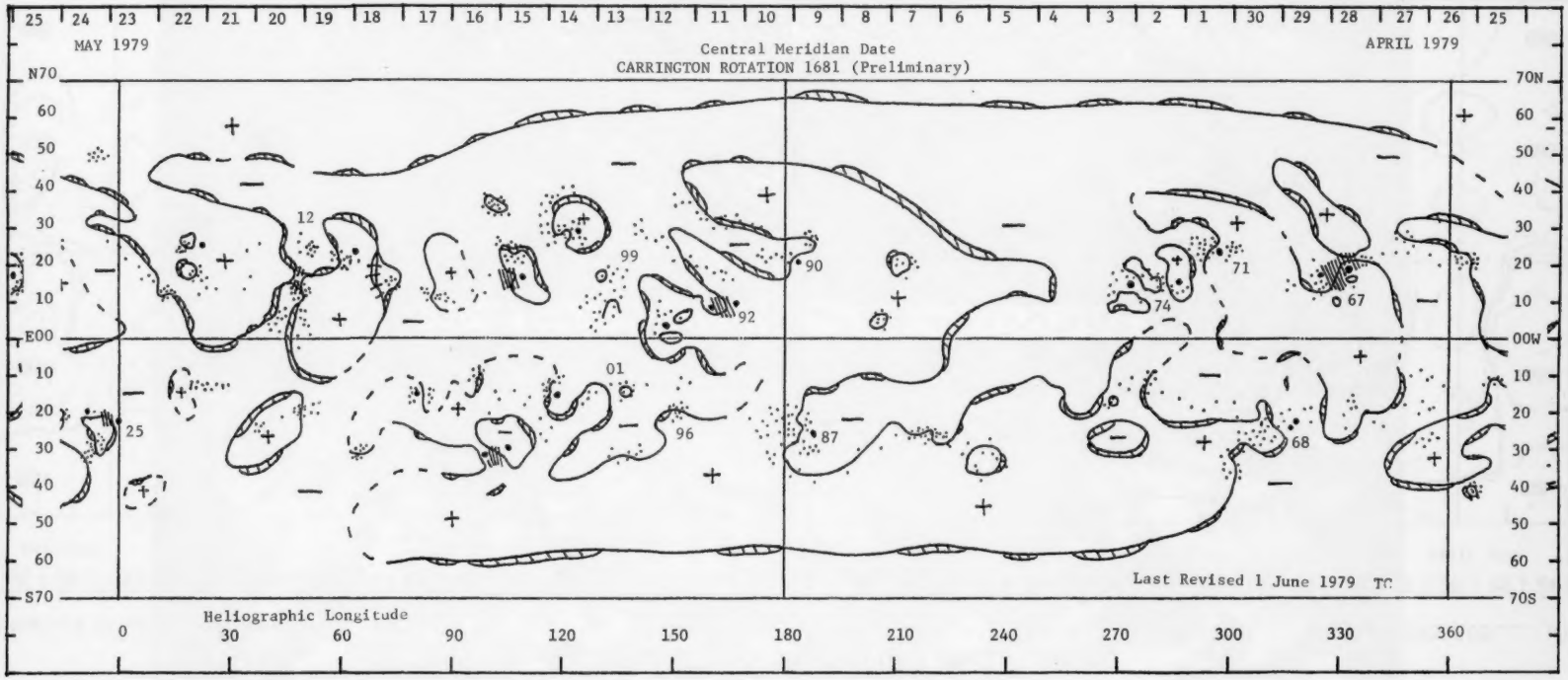
Hα SYNOPTIC CHART

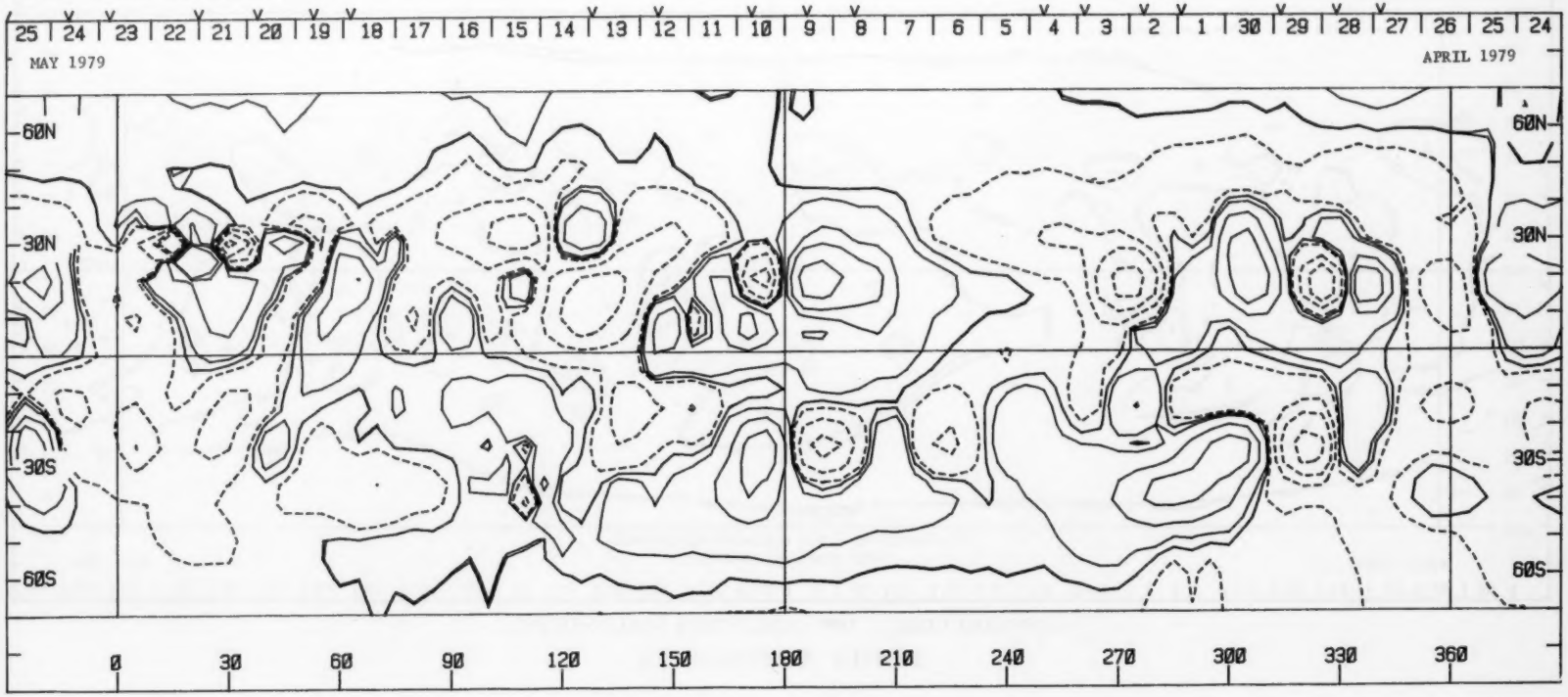
CARRINGTON ROTATION 1681 (PRELIMINARY)

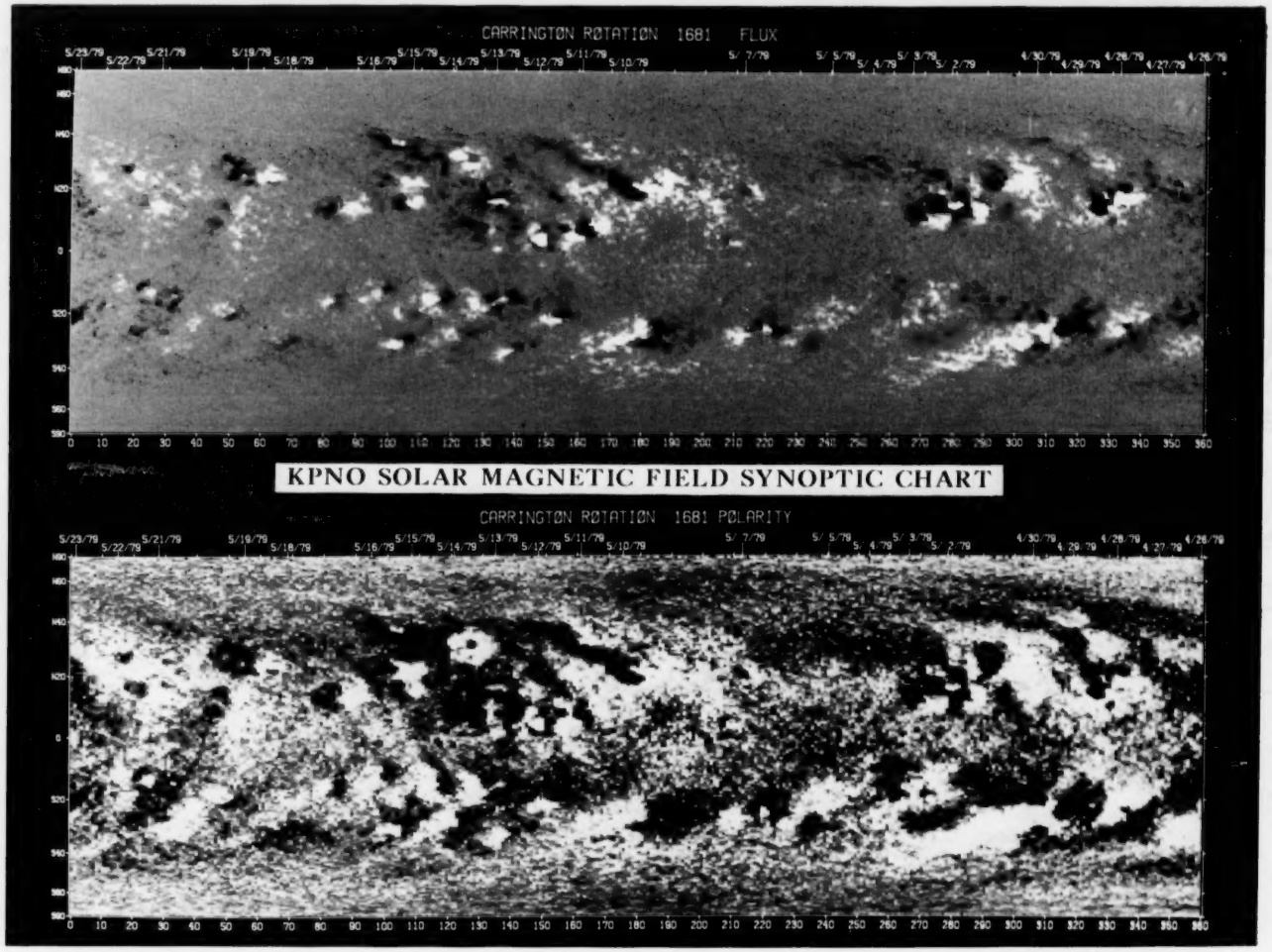


SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1681

Stanford Solar Observatory

0, ±100, 200, 500... μT

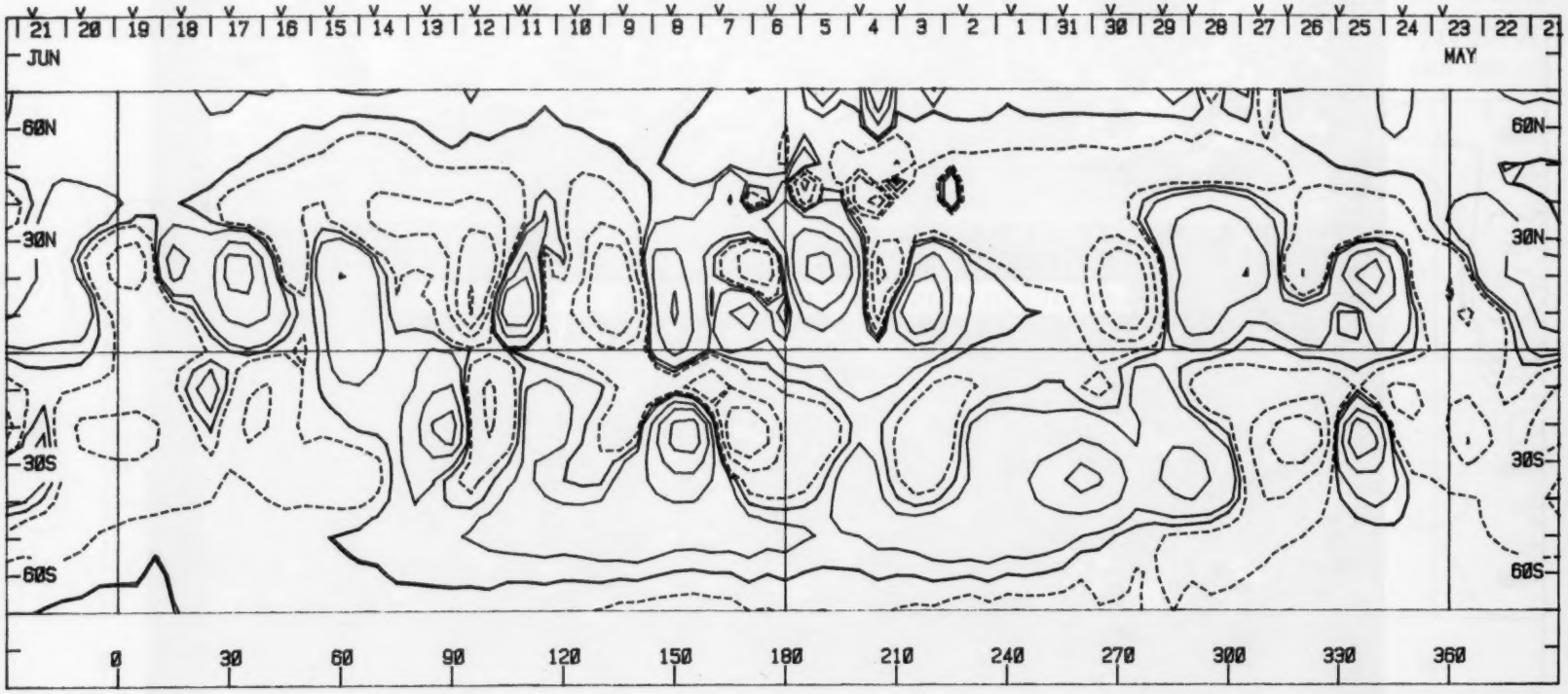


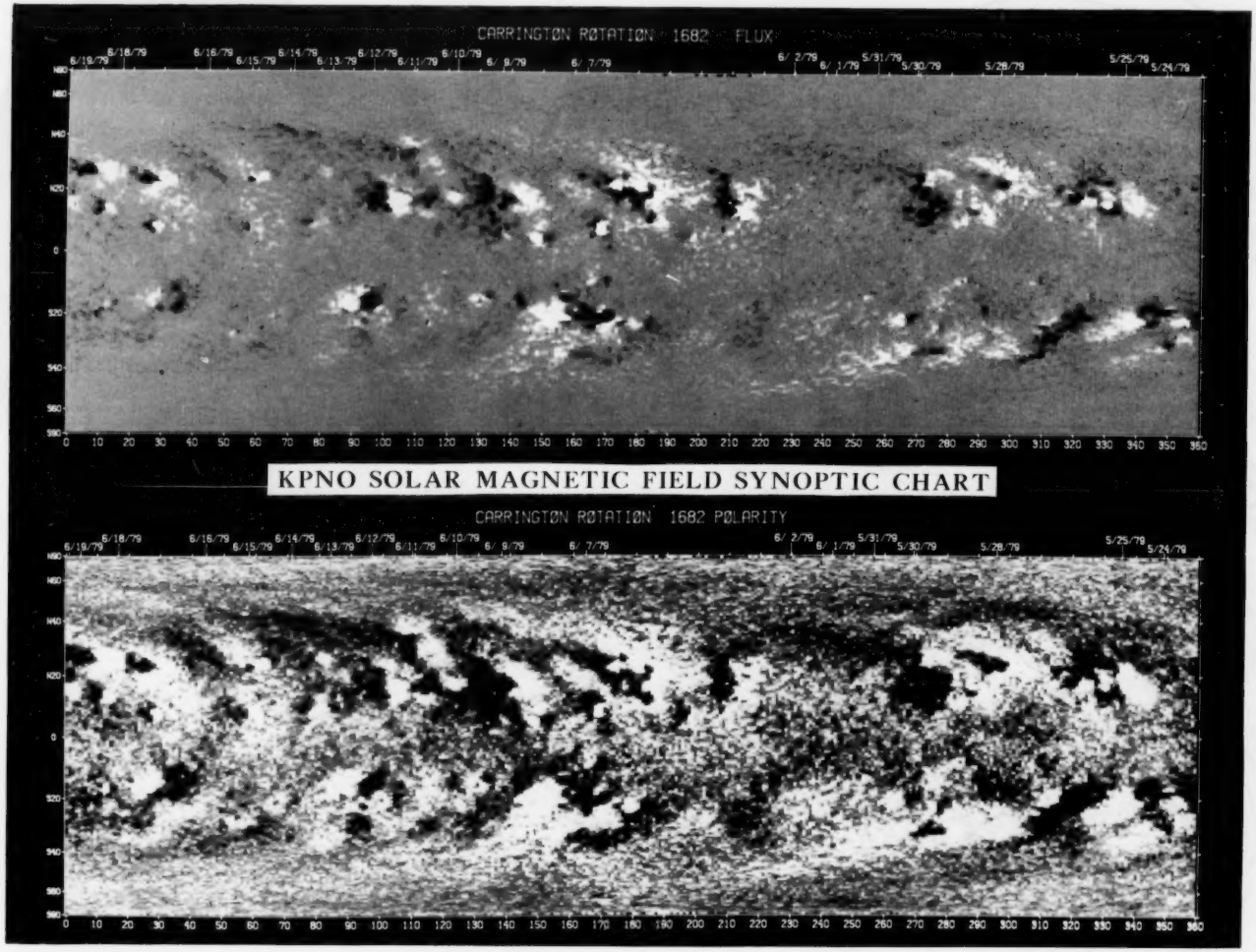

CARRINGTON ROTATION 1681 FLUX
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1681 POLARITY

SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1682

Stanford Solar Observatory

0,±100,200,500... μT

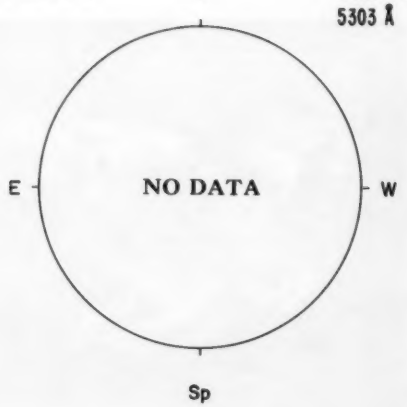



CARRINGTON ROTATION 1682 FLUX
6/19/79 6/18/79 6/16/79 6/15/79 6/14/79 6/13/79 6/12/79 6/11/79 6/10/79 6/ 9/79 6/ 7/79 6/ 2/79 6/ 1/79 5/31/79 5/30/79 5/28/79 5/25/79 5/24/79
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1682 POLARITY
6/19/79 6/18/79 6/16/79 6/15/79 6/14/79 6/13/79 6/12/79 6/11/79 6/10/79 6/ 9/79 6/ 7/79 6/ 2/79 6/ 1/79 5/31/79 5/30/79 5/28/79 5/25/79 5/24/79
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360

MAY 1, 1979 (P=-24.28, B_o=-4.20, L_o=301.09)

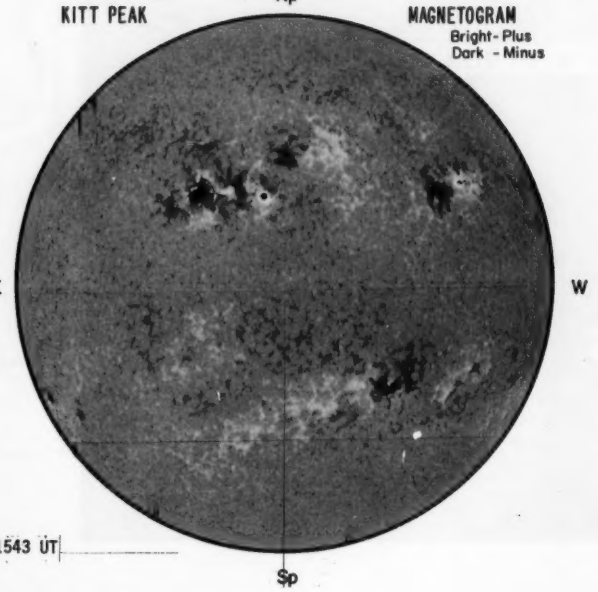
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

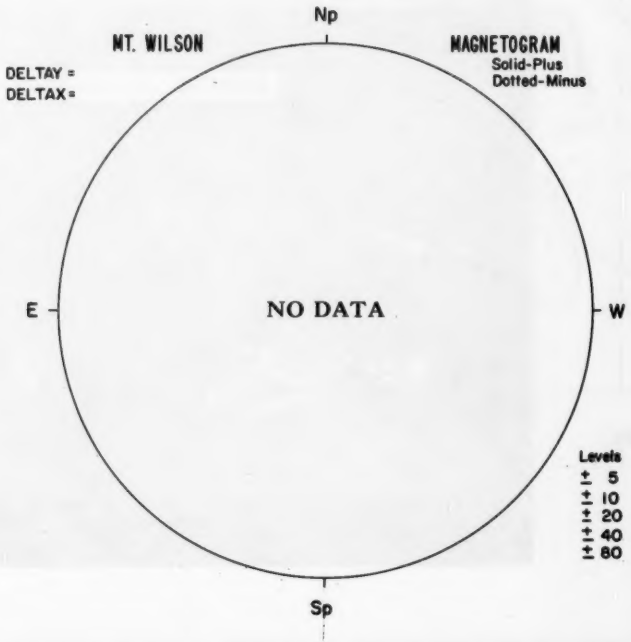


1543 UT

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus



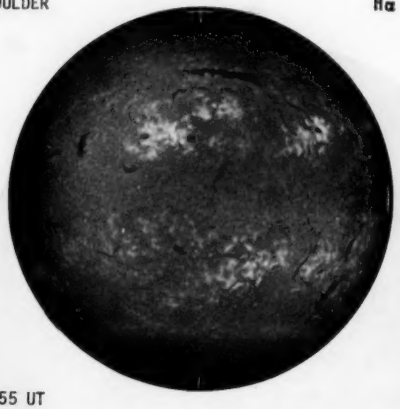
Levels
+ 5
++ 10
+++ 20
++++ 40
+++++ 80

Sp

Sp

01

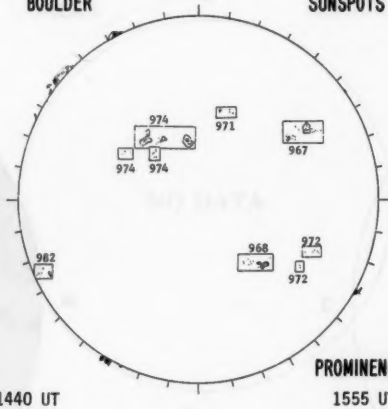
BOULDER Np Hα



E W

1555 UT Sp

BOULDER Np SUNSPOTS

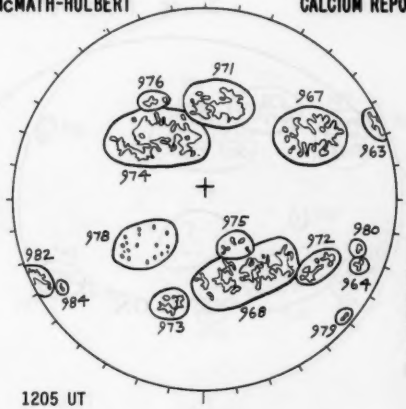


E W

PROMINENCES

1440 UT Sp 1555 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

GOOD	M
63-	1100-2.5
67-	4400-3.0
68-	4600-2.5
71-	3400-3.0
74-	5400-3.5
82-	1700-2.5

1205 UT Sp

NOSC LA POSTA Np 2.0 CM

E NO DATA W

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

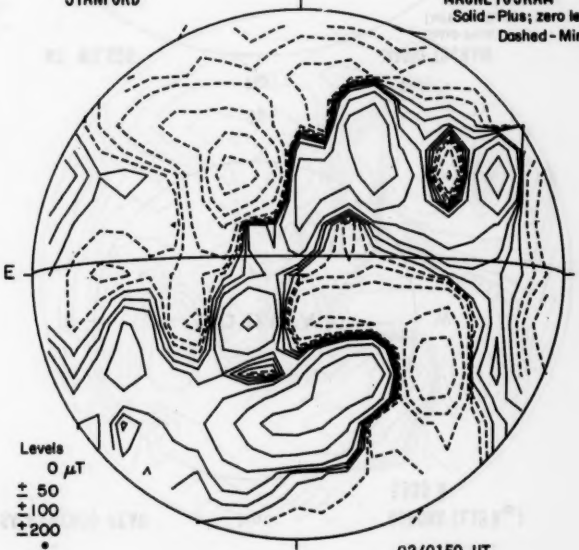
E NO DATA W

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

02/0150 UT Sp

MAY 2, 1979 ($P_\odot$=-24.10, $B_\odot$=-4.09, $L_\odot$=287.87)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

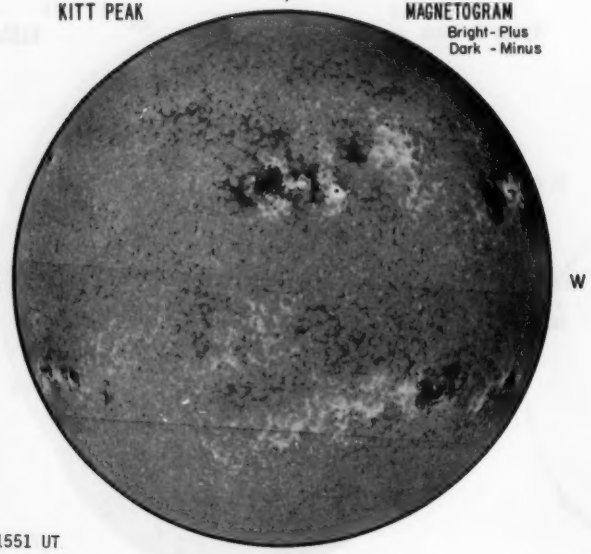
E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1551 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E — NO DATA — W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

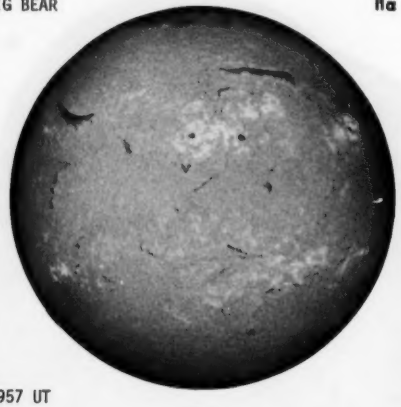
Sp

02

BIG BEAR

Np

Hα



E

W

1957 UT

Sp

BOULDER

Np

SUNSPOTS

NO DATA

E

W

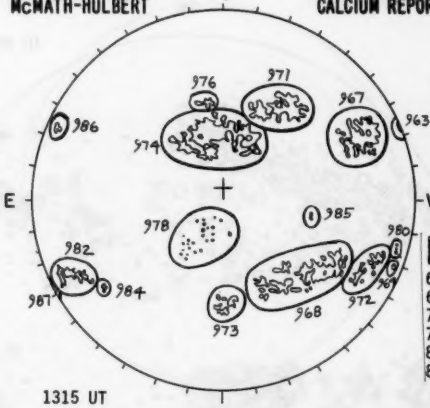
PROMINENCES

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1315 UT

Sp

GOOD	M
67-	4400-3.5
68-	4600-2.5
71-	3300-3.0
74-	6200-3.5
82-	1500-2.5
86-	0400-3.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

W

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

W

Sp

Ant. Temp. Unit 100° K

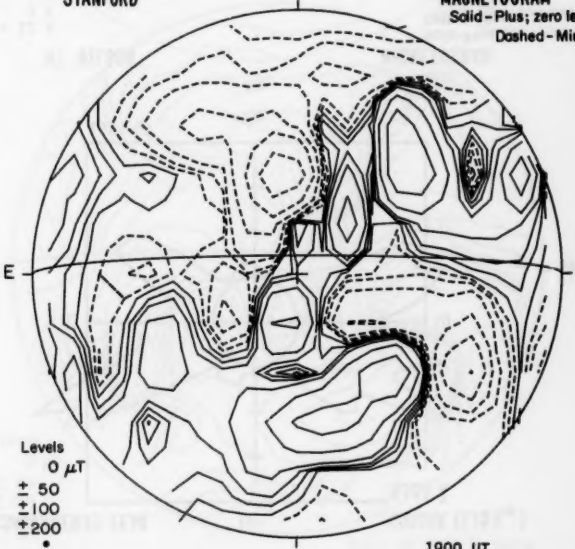
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

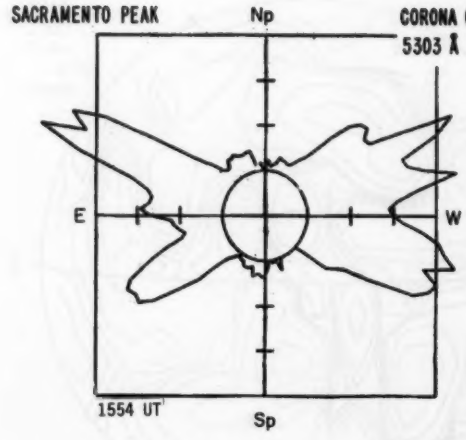
±100

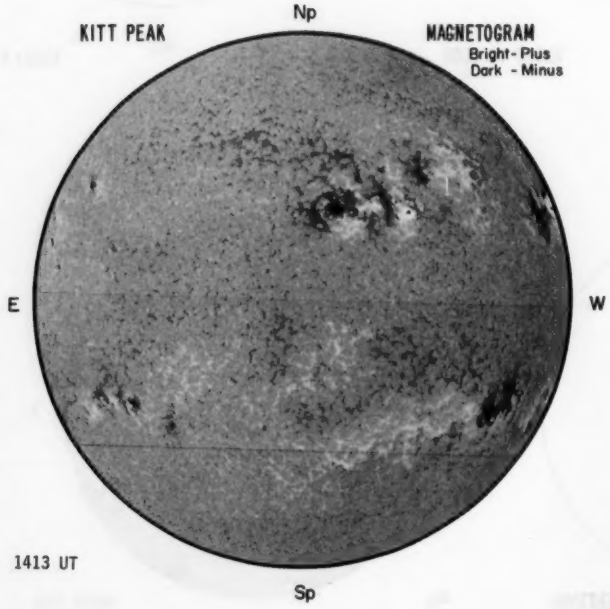
±200

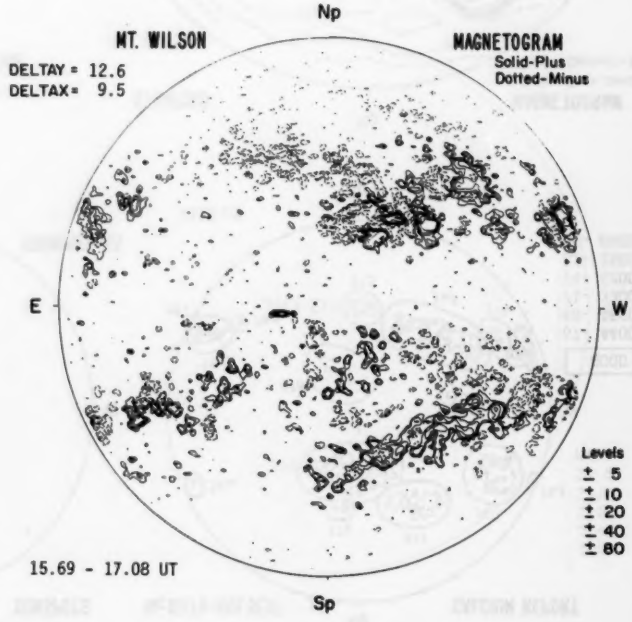
1900 UT

Sp

MAY 3, 1979 (P=-23.92, B_o=-3.99, L_o=274.66)







Sp

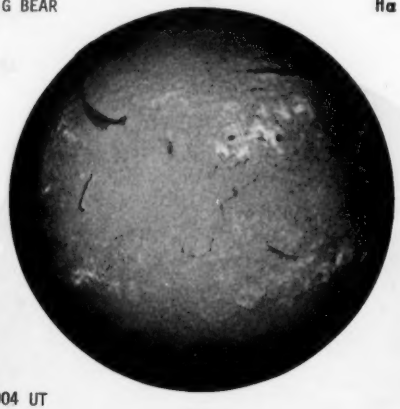
Sp

83

BIG BEAR

Np

Hα



E

W

2004 UT

Sp

BOULDER

Np

SUNSPOTS

NO DATA

E

W

PROMINENCES

Sp

McMATH-HULBERT

Np

CALCIUM REPORT

NO DATA

E

W

Sp

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

W

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

W

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

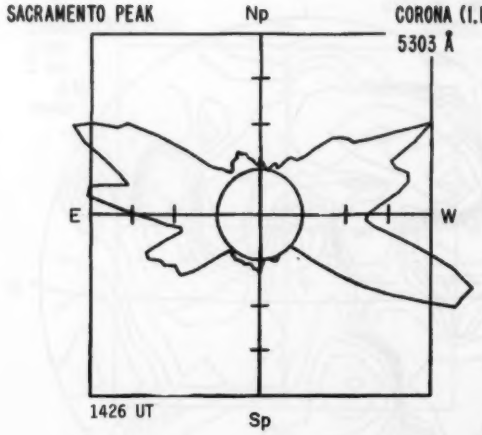
±200

Sp

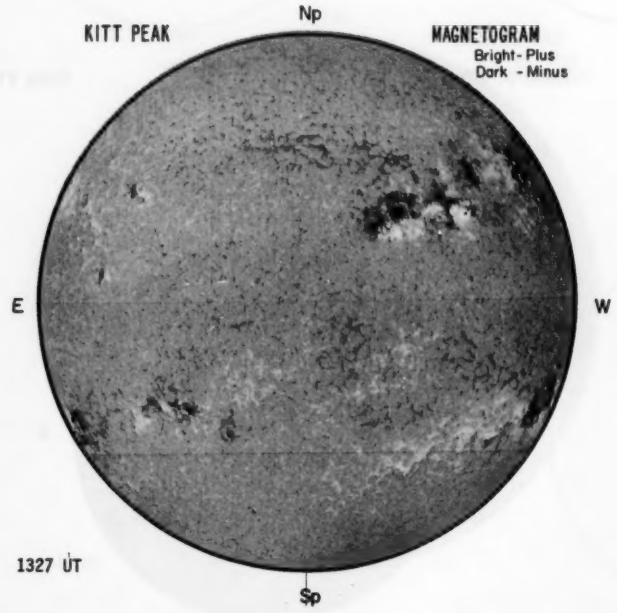
0101 UT May 4, 1979

MAY 4, 1979 (P=-23.73, B_o=-3.89, L_o=261.44)

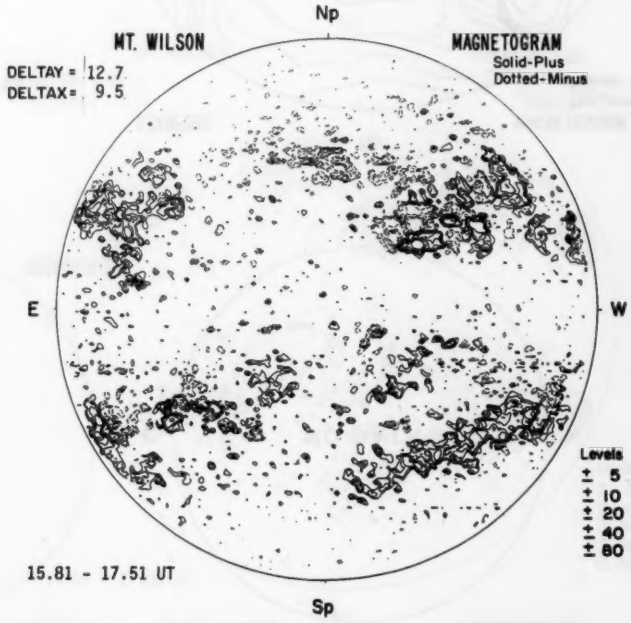
SACRAMENTO PEAK



KITT PEAK



MT. WILSON

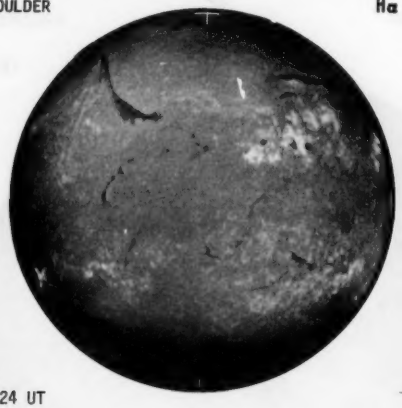


Sp

Sp

84

BOULDER Np Hα

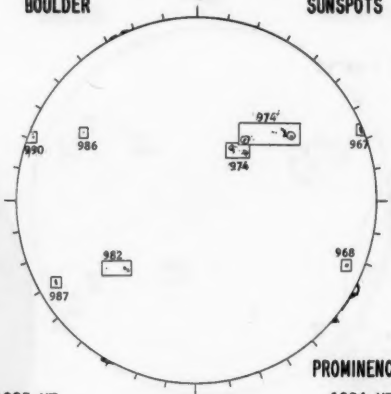


E W

1324 UT

Sp

BOULDER Np SUNSPOTS



E W

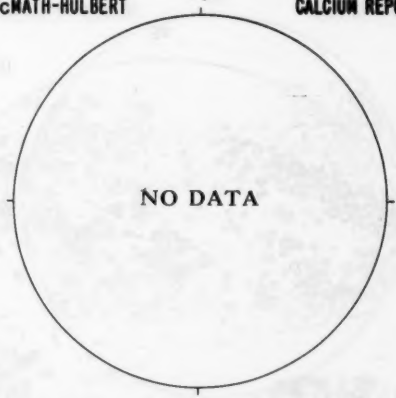
1325 UT

Sp

PROMINENCES

1324 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

Sp

NOSC LA POSTA Np 2.0 CM

E W

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

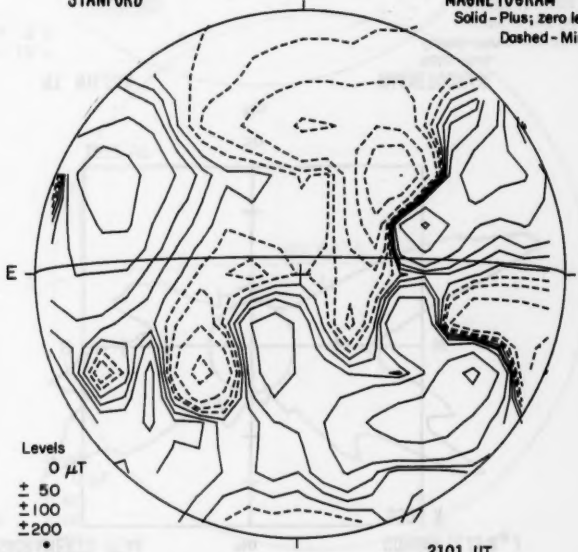
E W

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

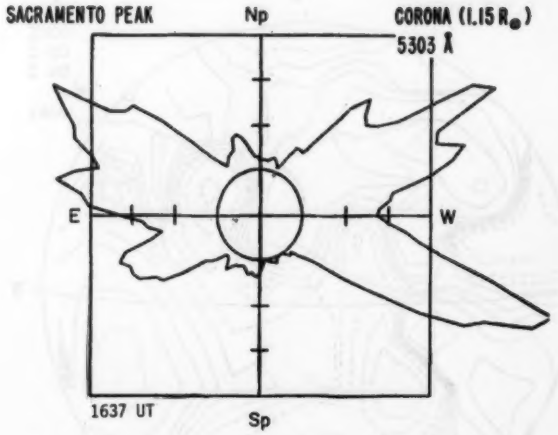
Sp

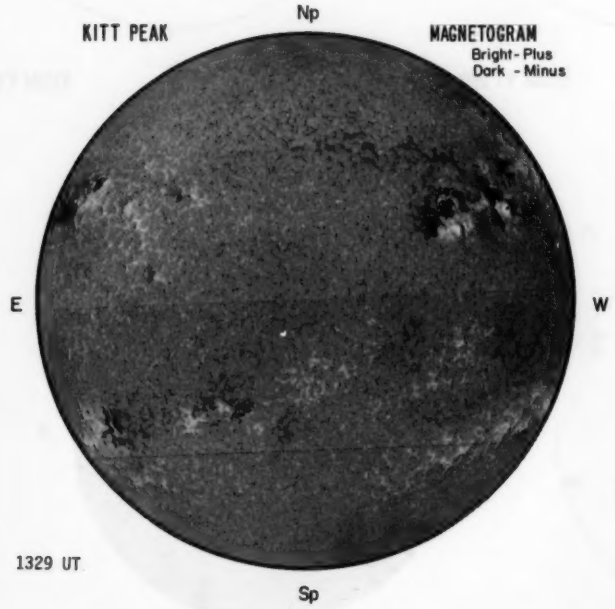
2101 UT

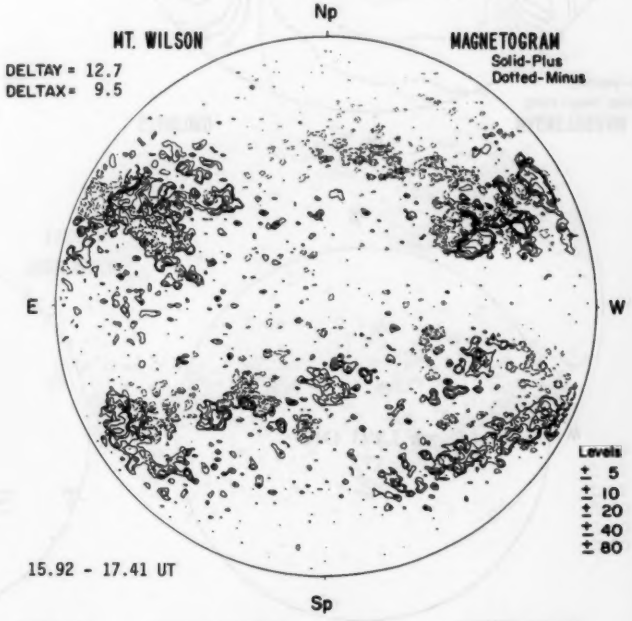
55

May 79

MAY 5, 1979 (P=-23.53, B_o=-3.79, L_o=248.22)

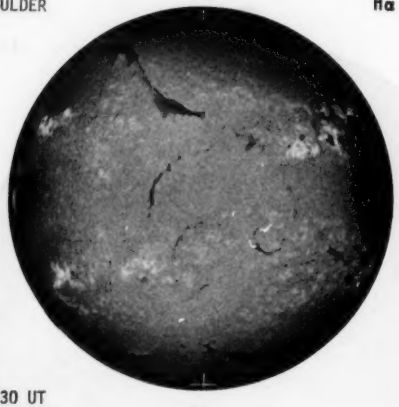






05

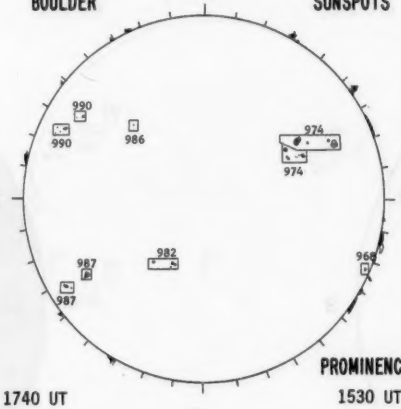
BOULDER Np Hα



E W

1530 UT Sp

BOULDER Np SUNSPOTS



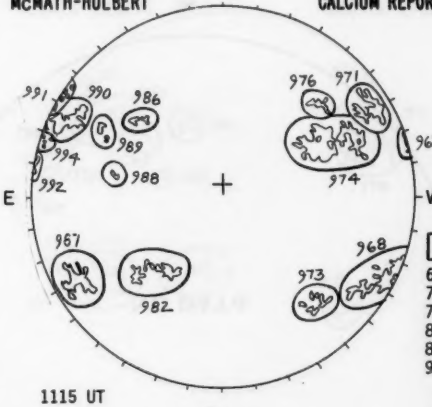
E W

1740 UT Sp

PROMINENCES

1530 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

1115 UT Sp

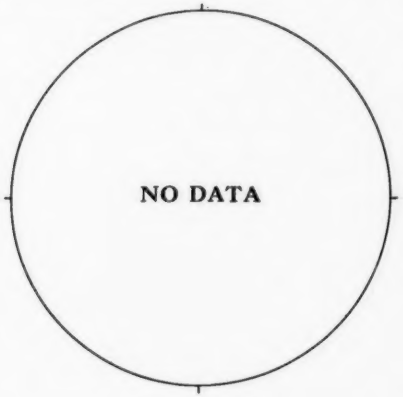
FAIR	M
68- 4900-2.0	
71- 3300-3.0	
74- 6700-3.5	
82- 1800-2.5	
87- 3400-3.0	
90- 3000-3.5	

NOSC LA POSTA Np 2.0 CM

E W

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



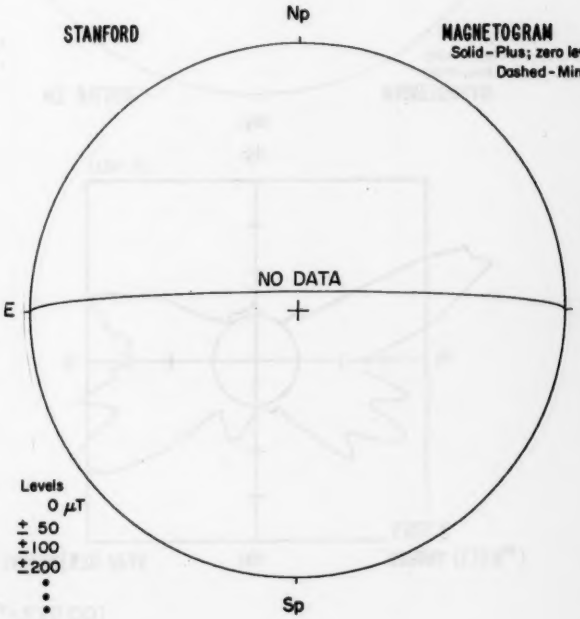
E W

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

± 100

± 200

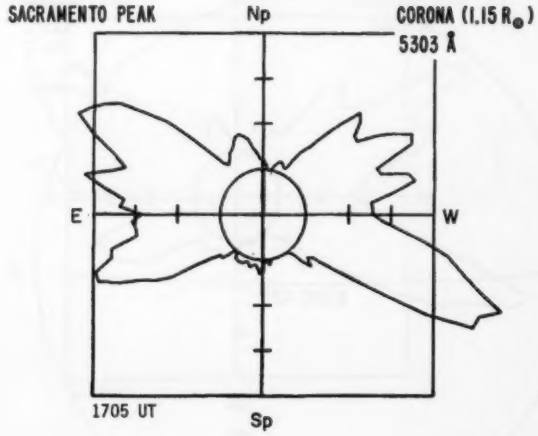
Sp

57

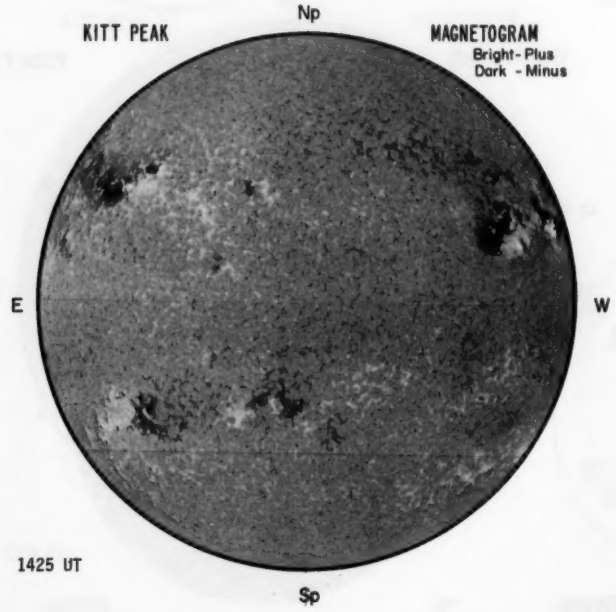
May 79

MAY 6, 1979 (P=-23.33, B_o=-3.68, L_o=235.00)

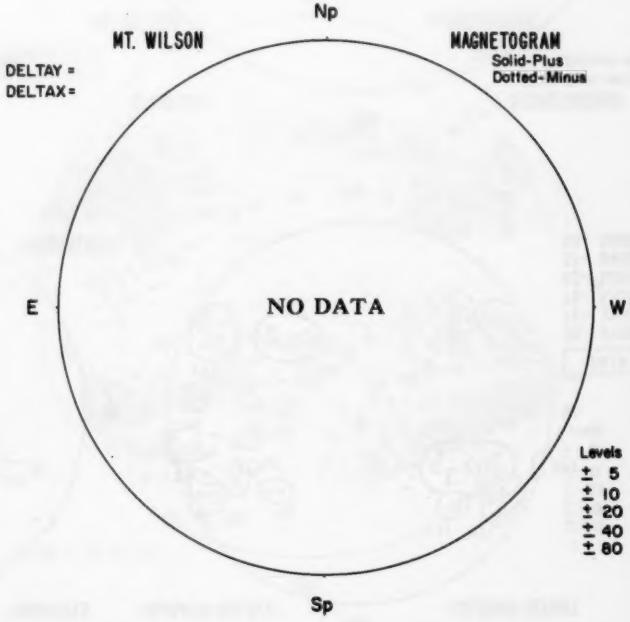
SACRAMENTO PEAK



KITT PEAK



MT. WILSON



Sp

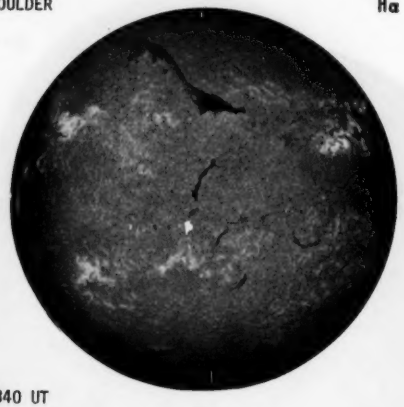
Sp

06

BOULDER

Np

Hα



E W

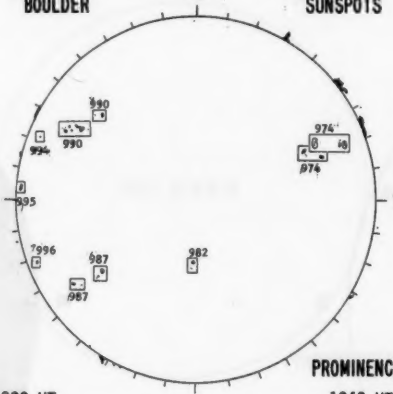
1340 UT

Sp

BOULDER

Np

SUNSPOTS



E W

PROMINENCES

1330 UT

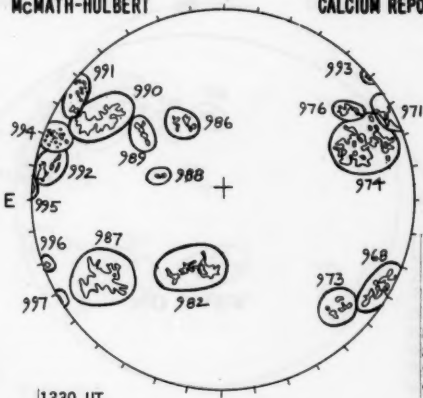
1340 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E W

1330 UT

Sp

FAIR	M
68- 3300-2.0	
71- 2700-2.5	
74- 5200-3.0	
82- 1700-2.5	
87- 4100-3.0	
90- 3300-3.5	
92- 1400-2.5	
93- 0100-2.5	

NOSC LA POSTA

Np

2.0 CM

E NO DATA W

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E NO DATA W

Sp

Ant. Temp. Unit 100° K

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

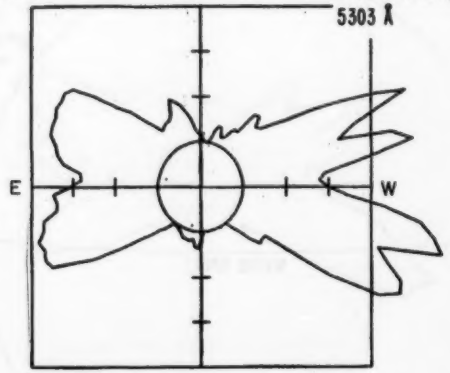
±100

±200

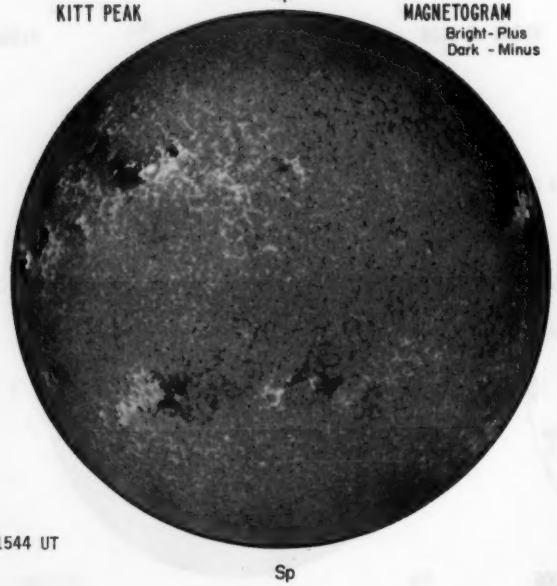
Sp

MAY 7, 1979 (P = -23.11, B_o = -3.58, L_o = 221.78)

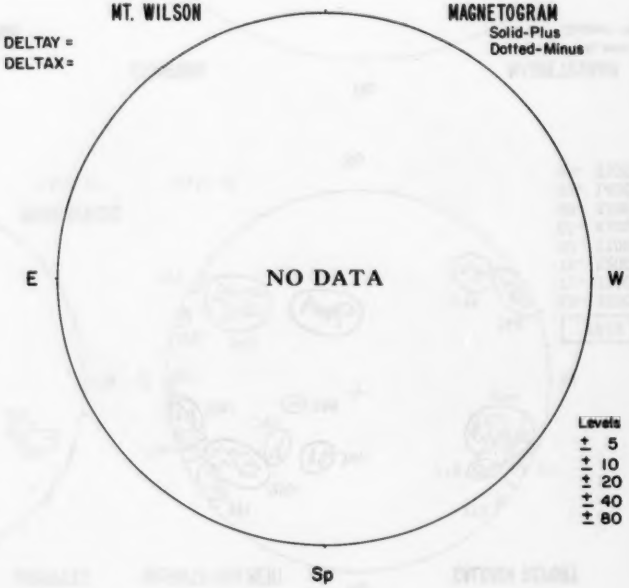
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



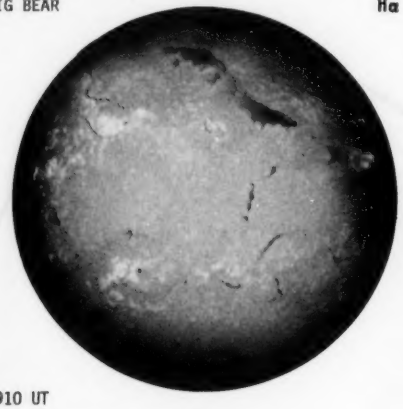
MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



Sp

Sp

BIG BEAR Np Hα



E W

1910 UT

Sp

BOULDER Np SUNSPOTS

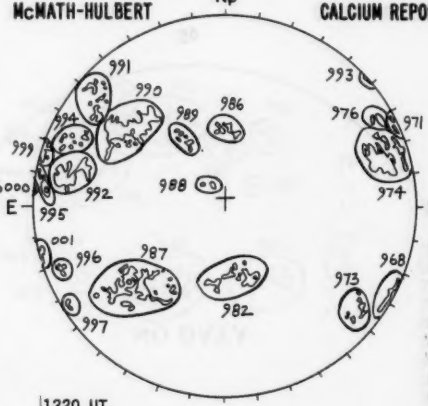
NO DATA

E W

PROMINENCES

Sp

McMATH-HULBERT Np CALCIUM REPORT



E W

1220 UT

Sp

GOOD	M
74- 5500-3.0	
76- 1000-3.0	
82- 1700-2.5	
87- 4200-3.0	
90- 5100-4.0	
92- 1800-2.5	
97- 0400-2.5	
01- 1500-2.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E W

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

E W

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

±200

Sp

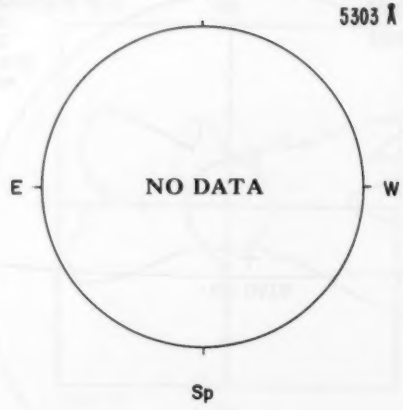
61

May 79

MAY 8, 1979 (P=-22.89, B_o=-3.47, L_o=208.56)

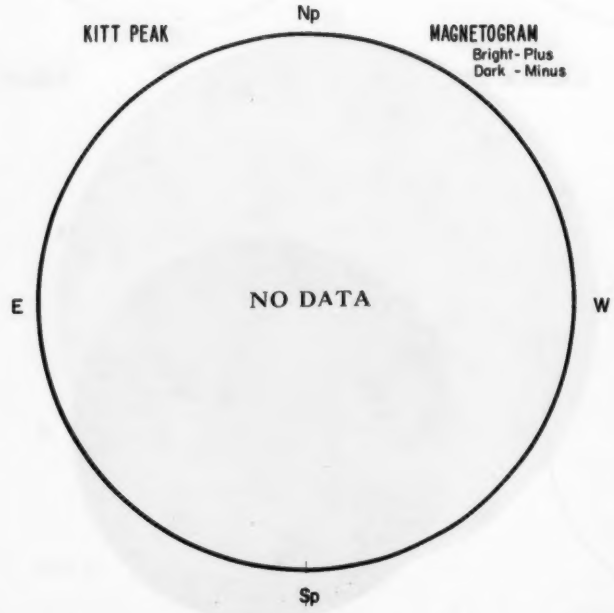
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

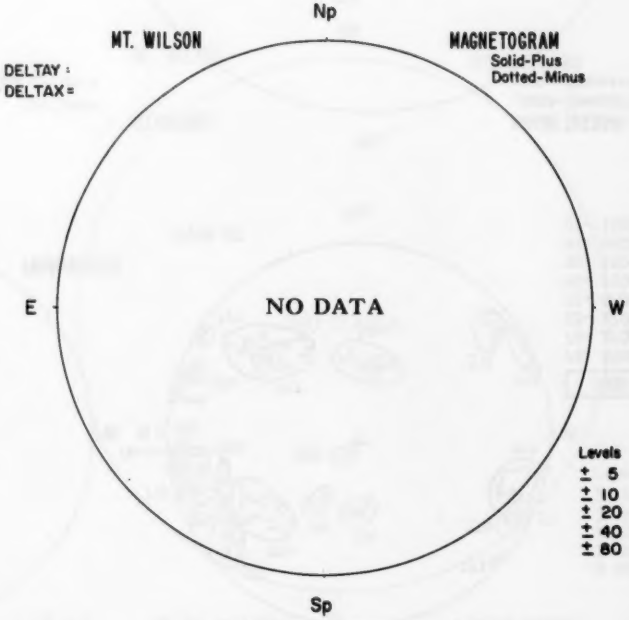
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY :
DELTAX =



Sp

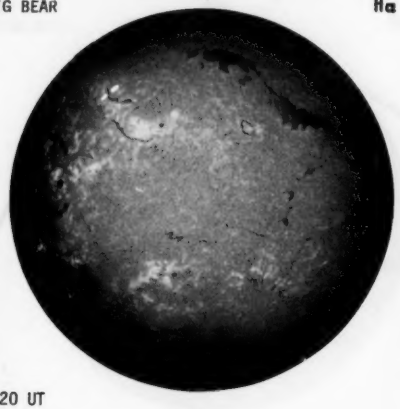
Sp

08

BIG BEAR

Np

Hα



E

W

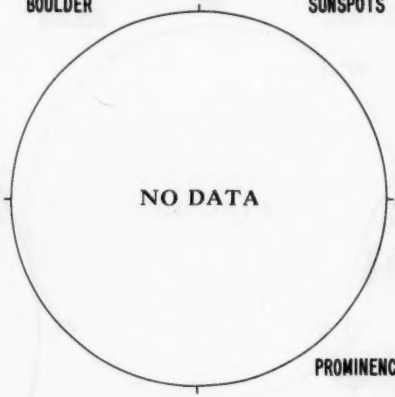
1820 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

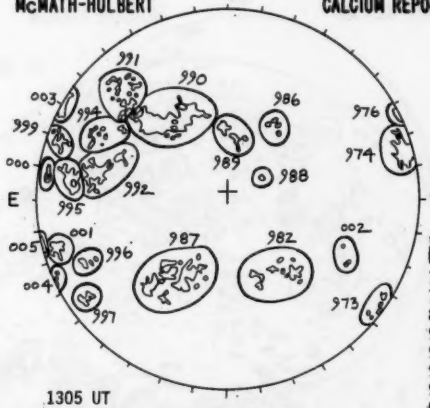
PROMINENCES

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1305 UT

Sp

GOOD	S
73- 0600-2.5	
74- 5500-3.0	
87- 4200-3.0	
90- 5000-3.0	
92- 2100-2.5	
95- 1900-2.5	
97- 0700-2.5	
01- 2300-3.5	

NOSC LA POSTA

Np

2.0 CM

E

W

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

E

W

Sp

Ant. Temp. Unit 100° K

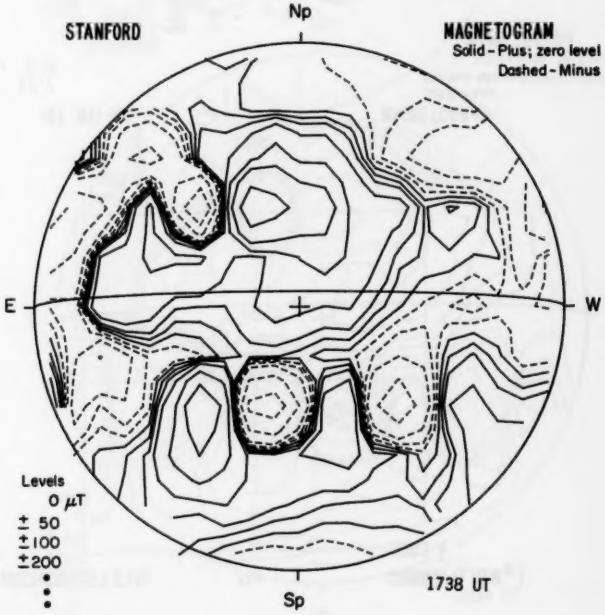
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

1738 UT

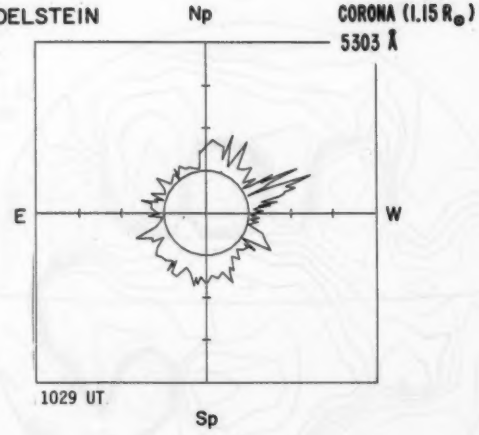
Sp

63

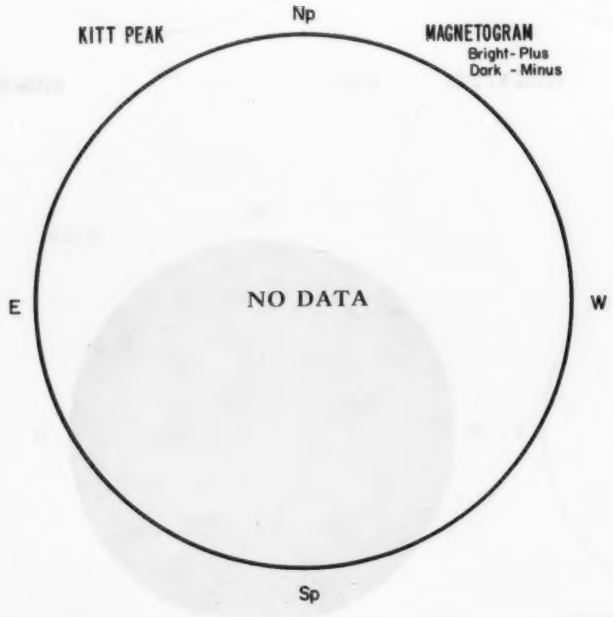
May 79

MAY 9, 1979 (P = -22.67, B_o = -3.36, L_o = 195.34)

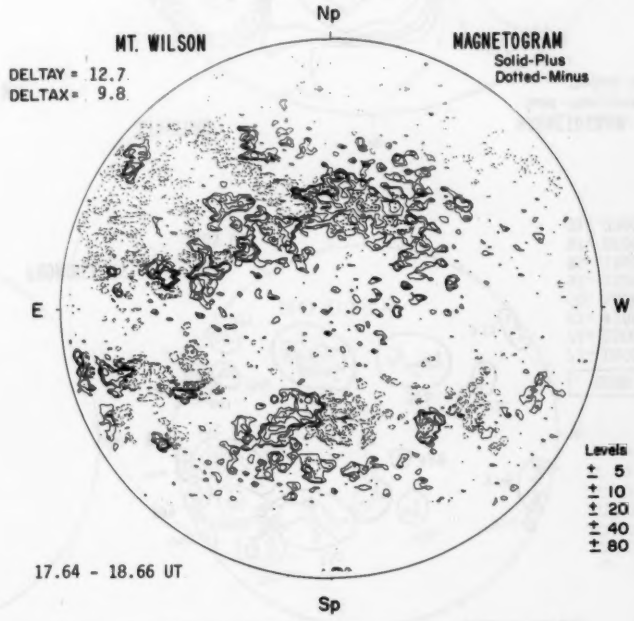
WENDELSTEIN



KITT PEAK



MT. WILSON



Sp

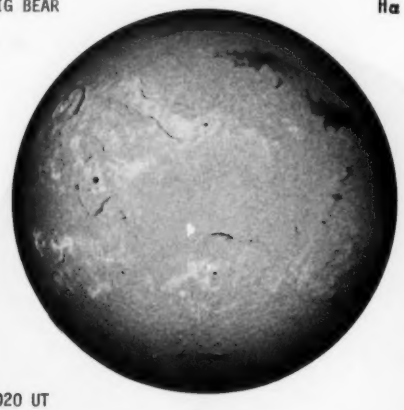
Sp

09

BIG BEAR

Np

Hα



E W

2020 UT

Sp

BOULDER

Np

SUNSPOTS

NO DATA

E W

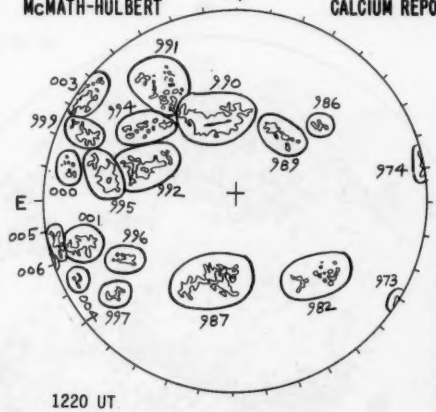
PROMINENCES

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E W

1220 UT

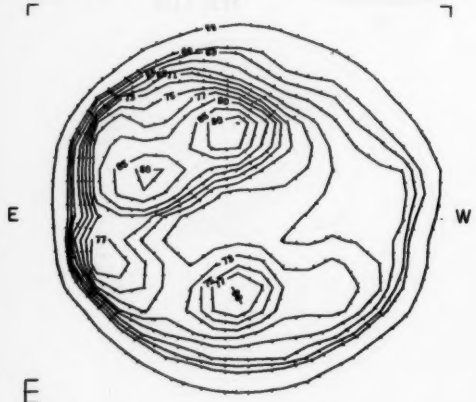
Sp

GOOD	M
87-	3900-3.0
90-	5000-3.0
92-	2200-2.5
95-	2600-2.5
97-	0700-3.0
01-	2400-3.0
03-	3100-4.0
05-	1300-2.5

NOSC LA POSTA

Np

2.0 CM



E W

2054 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

EQUIPMENT

E W

---- UT

Sp

Ant. Temp. Unit 100° K

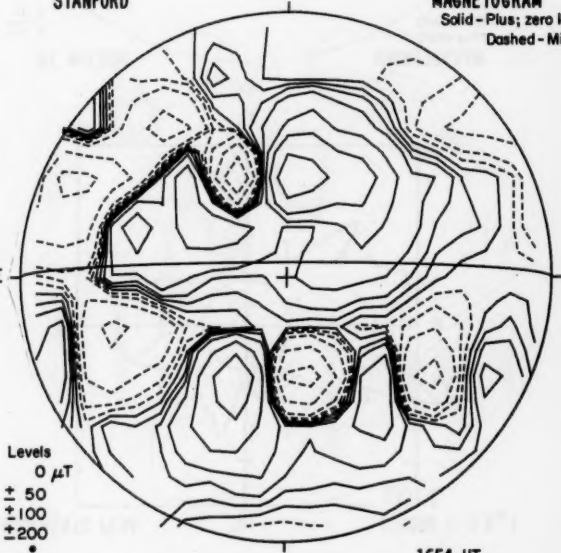
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

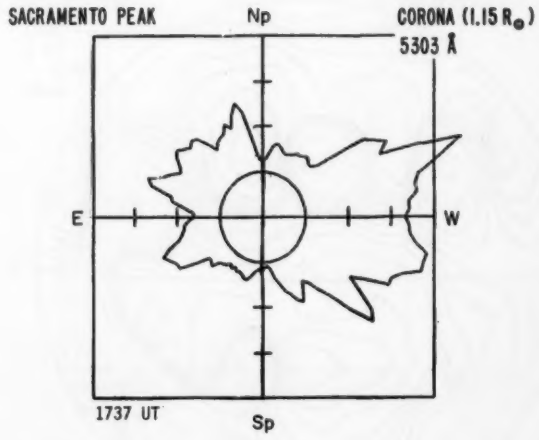
±100

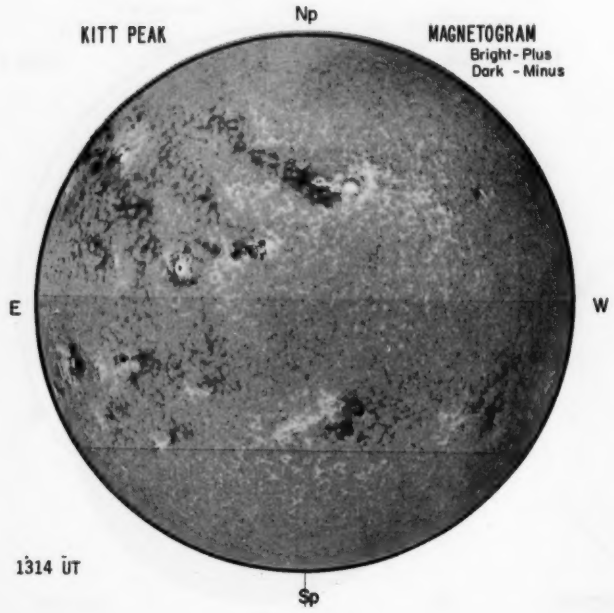
±200

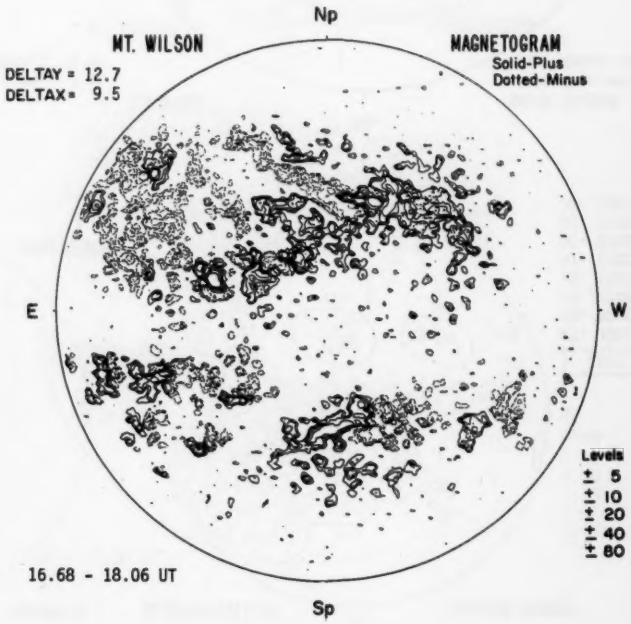
1654 UT

Sp

MAY 10, 1979 (P=-22.43, B_o=-3.25, L_o=182.12)





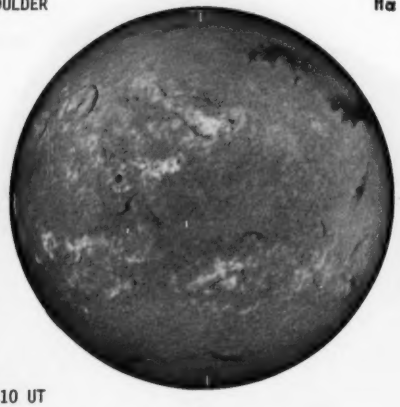


Sp

Sp

10

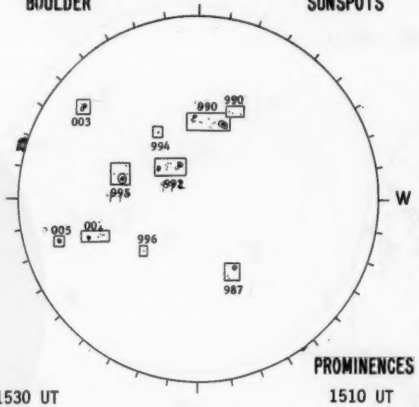
BOULDER Np Hα



E W

1510 UT Sp

BOULDER Np SUNSPOTS



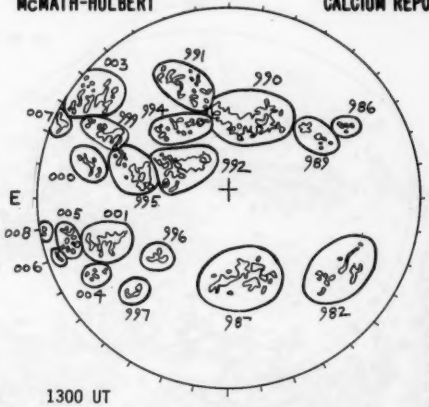
E W

1530 UT Sp

PROMINENCES

1510 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

1300 UT Sp

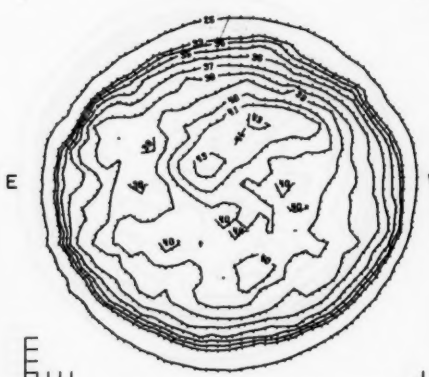
GOOD	M
87- 3400-2.5	
90- 5000-3.0	
92- 2500-2.5	
95- 2200-2.5	
97- 0400-2.5	
00- 0600-2.5	
01- 2100-2.5	
03- 3200-2.5	
05- 1200-3.0	
06- 0400-2.5	

NOSC LA POSTA Np 2.0 CM

E W

1822 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



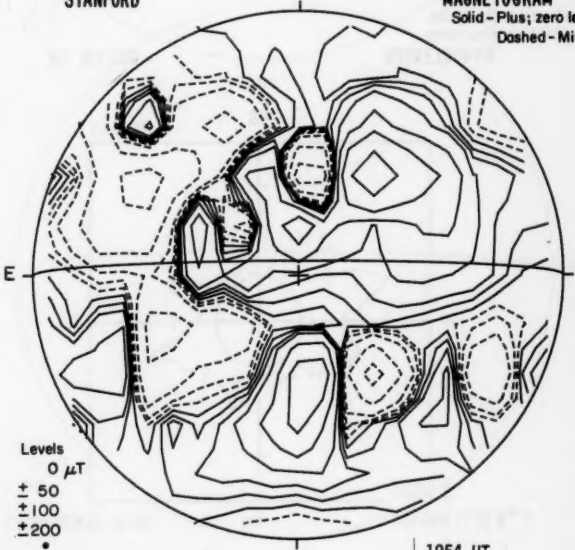
E W

1933 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

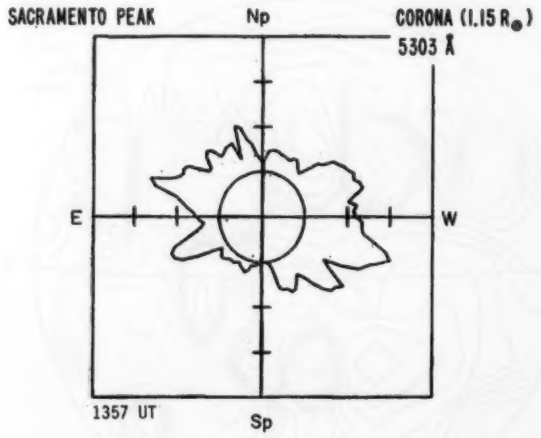
±200

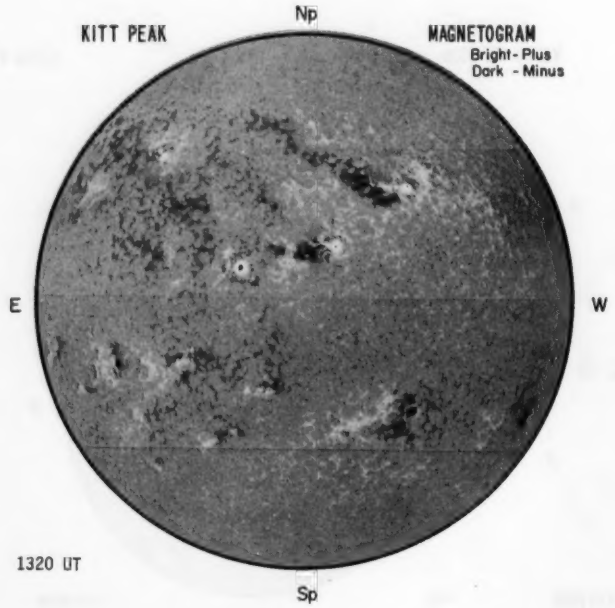
1954 UT Sp

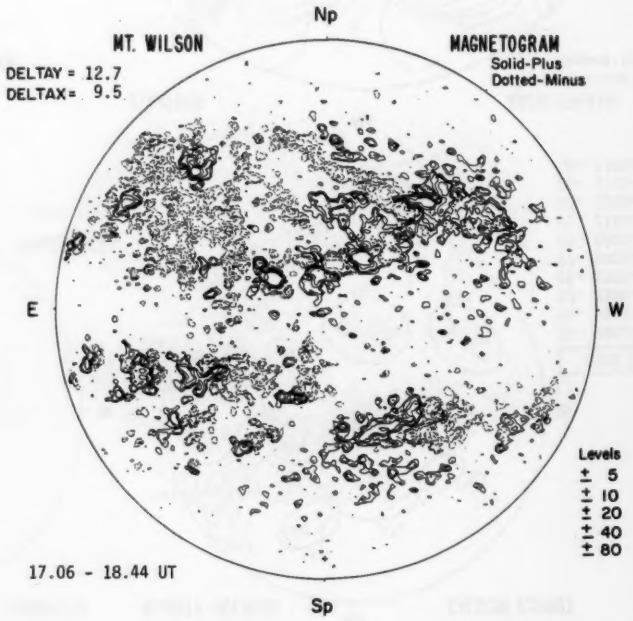
67

May 79

MAY 11, 1979 (P=-22.19, B_o=-3.14, L_o=168.89)



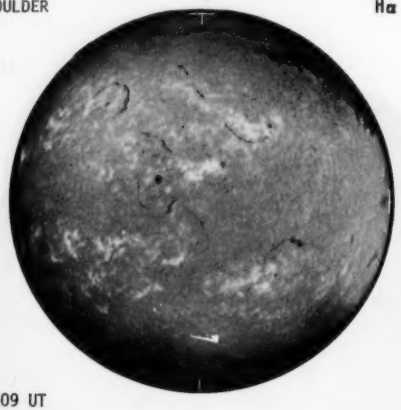




Sp

Sp

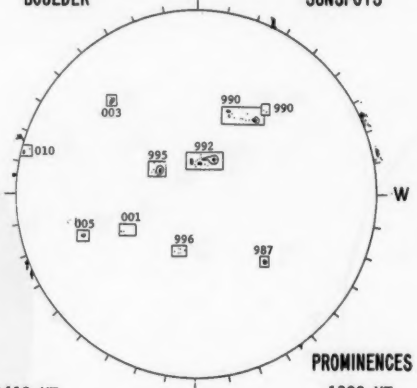
BOULDER Np Hα



E W

1309 UT Sp

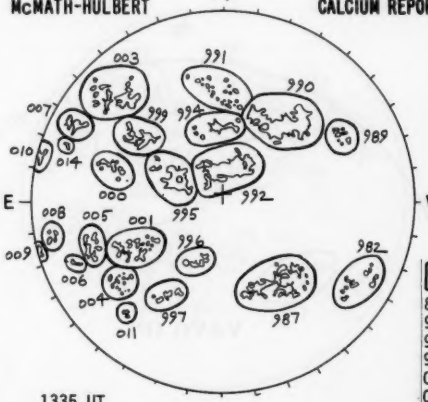
BOULDER Np SUNSPOTS



E W

1410 UT Sp PROMINENCES 1309 UT

McMATH-HULBERT Np CALCIUM REPORT

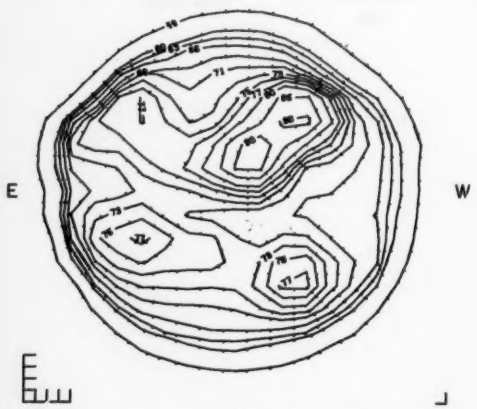


E W

1335 UT Sp

GOOD	M
87- 3200-2.5	
90- 5000-3.0	
92- 3000-3.0	
96- 0500-2.5	
01- 1700-2.5	
05- 1200-2.5	
06- 0200-2.5	
10- 1200-3.0	

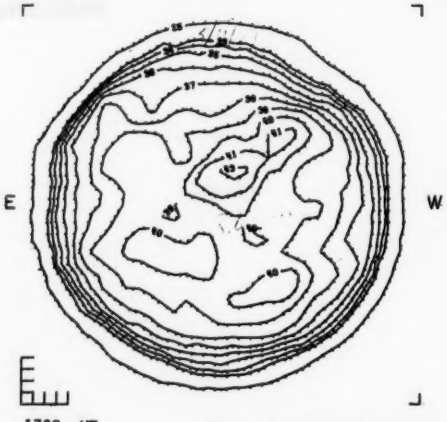
NOSC LA POSTA Np 2.0 CM



E W

1649 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



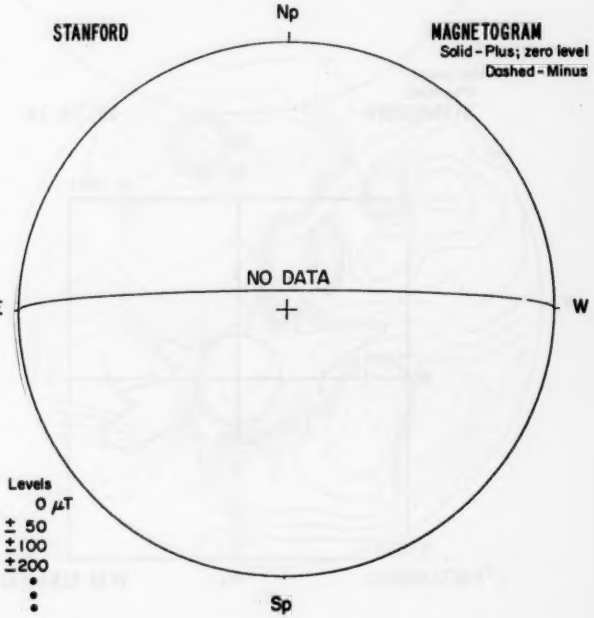
E W

1732 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

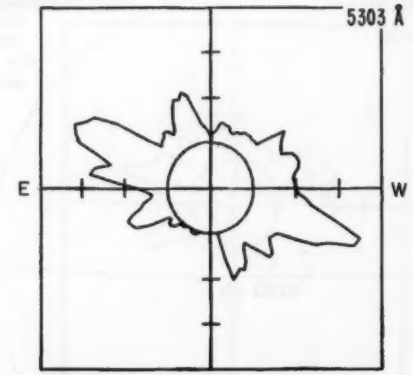
Sp

69

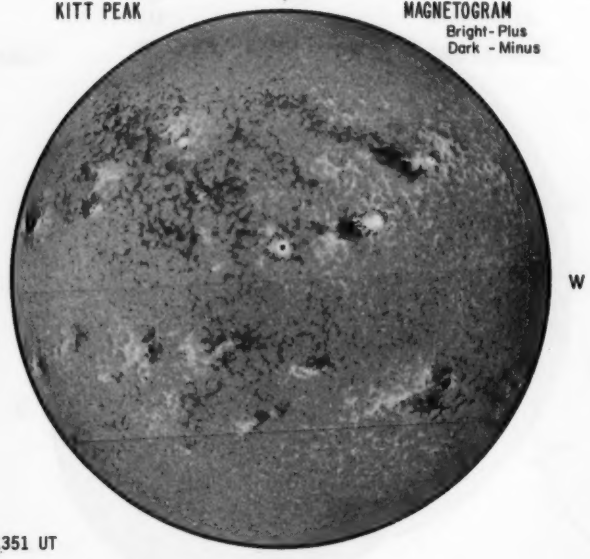
May 79

MAY 12, 1979 (P=-21.95, B_o=-3.03, L_o=155.67)

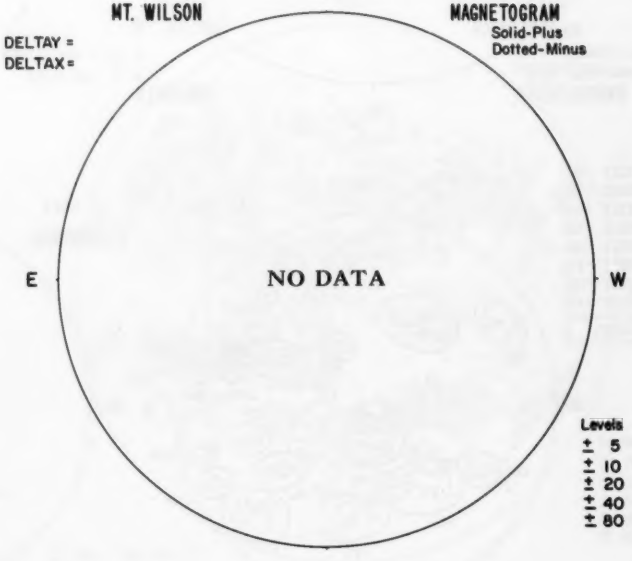
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX =



Sp

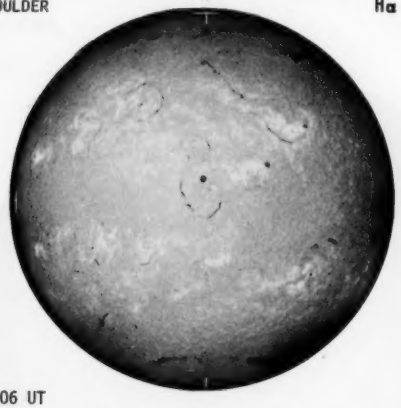
Sp

12

BOULDER

Np

Hα



E

W

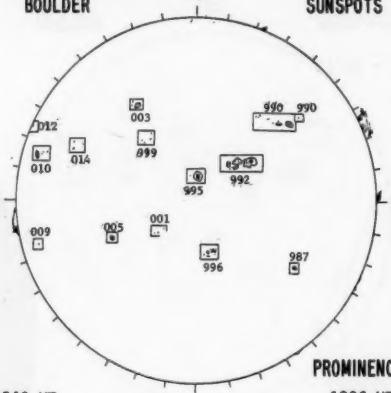
1306 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

1240 UT

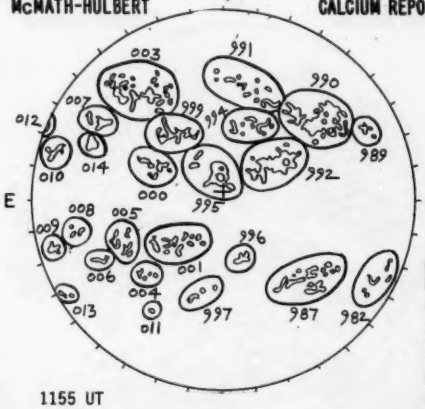
Sp

1306 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1155 UT

Sp

POOR	S
87-	2800-2.5
90-	5000-3.0
92-	3000-3.0
96-	0400-2.5
05-	1000-2.5
09-	0800-3.0
10-	1200-3.5

NOSC LA POSTA

Np

2.0 CM

NO DATA

E

WEATHER

W

---- UT.

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

E

WEATHER

---- UT

Sp

Ant. Temp. Unit 100° K

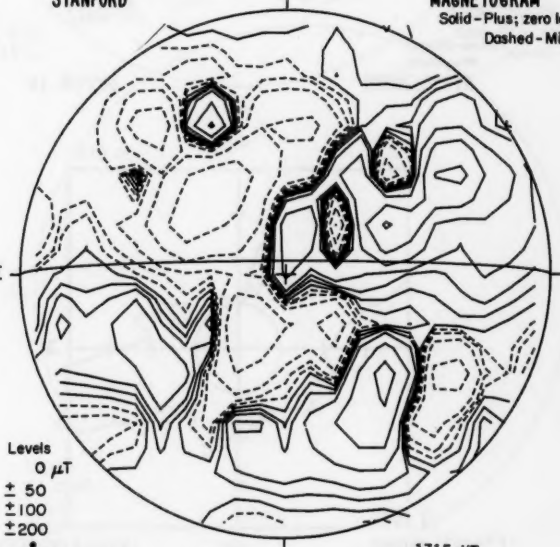
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



N

E

W

Levels

0 μT

± 50

±100

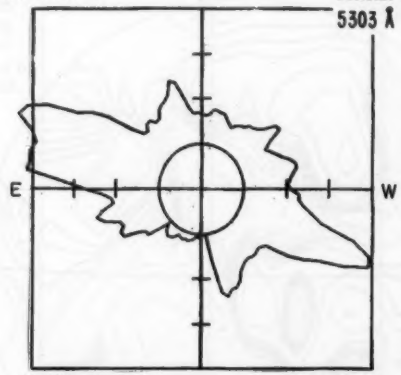
±200

1715 UT

Sp

MAY 13, 1979 (P=-21.69, B_o=-2.92, L_o=142.44)

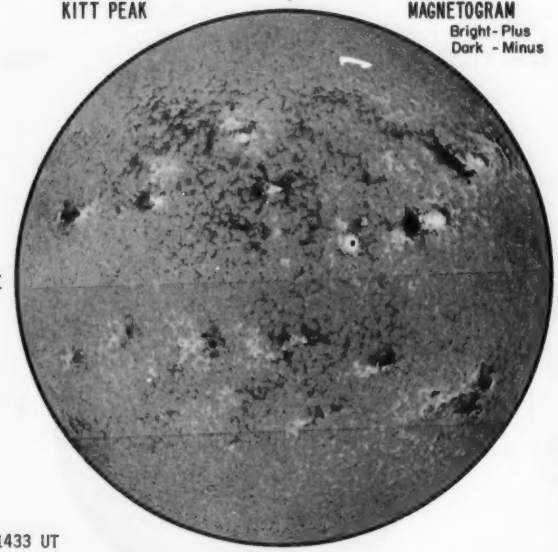
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1615 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



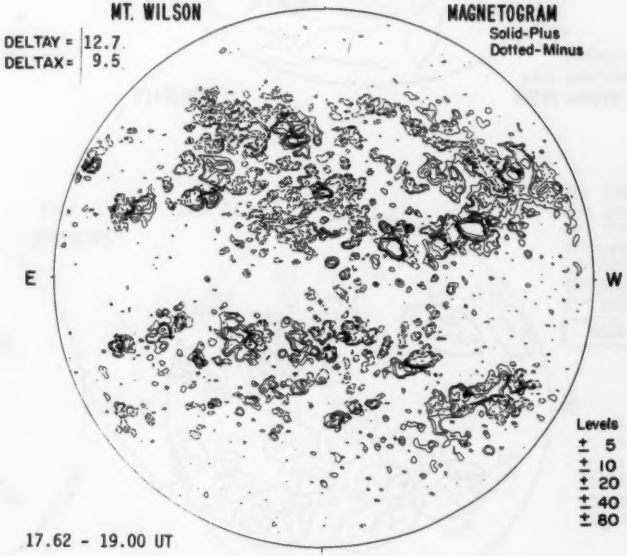
1433 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



17.62 - 19.00 UT

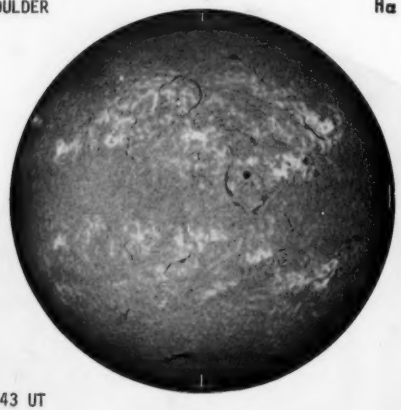
Sp

Sp

Sp

13

BOULDER Np Hα

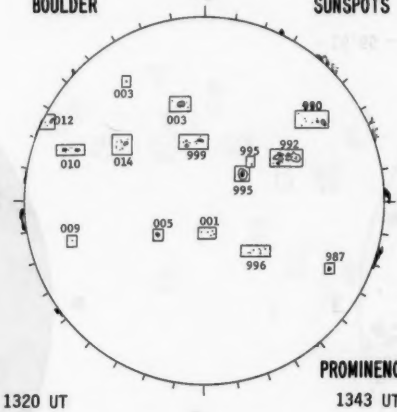


E W

1343 UT

Sp

BOULDER Np SUNSPOTS



E W

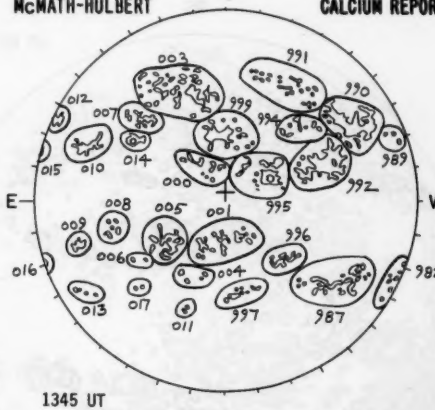
1320 UT

Sp

PROMINENCES

1343 UT

McMATH-HULBERT Np CALCIUM REPORT



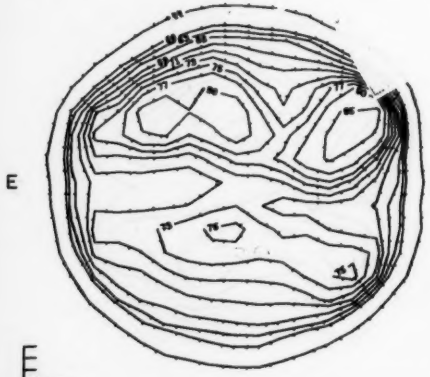
E W

1345 UT

Sp

GOOD	S
90-	5000-3.0
92-	3500-3.0
96-	0600-2.5
99-	1500-3.0
01-	1400-2.5
03-	3000-2.5
09-	0800-3.0
10-	1400-3.0
12-	1200-3.0
14-	0500-3.0

NOSC LA POSTA Np 2.0 CM



E W

1630 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

CALIBRATION

E W

---- UT

Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

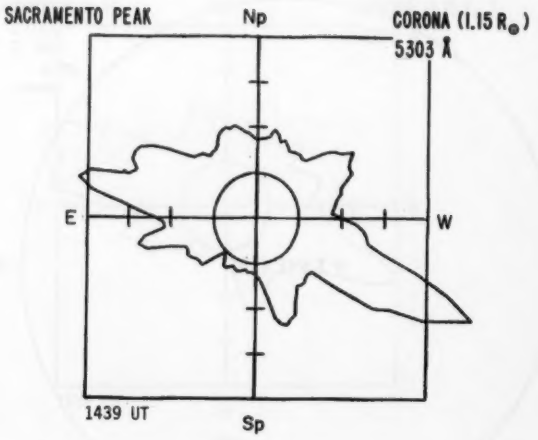
±200

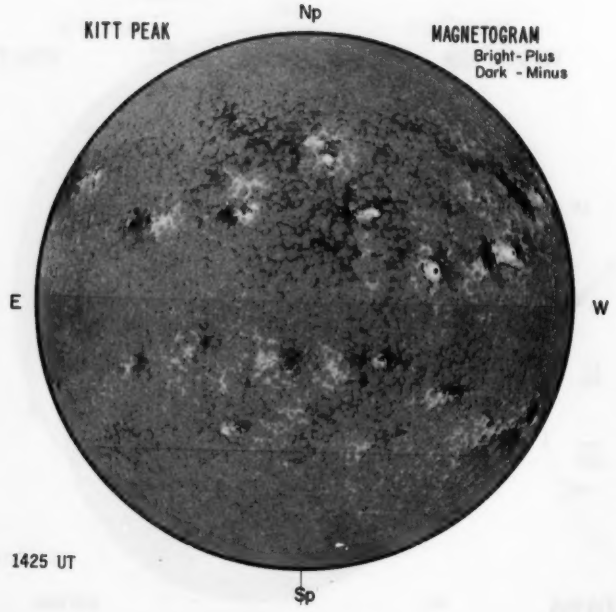
Sp

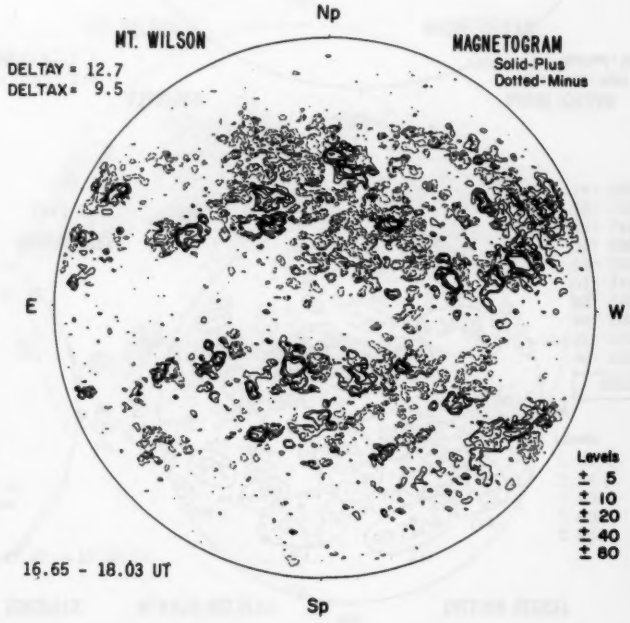
73

May 79

MAY 14, 1979 (P = -21.43, B_o = -2.81, L_o = 129.22)







Sp

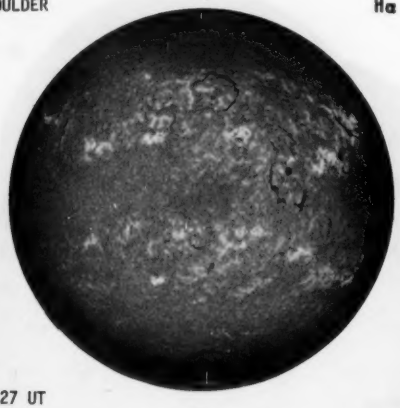
Sp

14

BOULDER

Np

Hα



E W

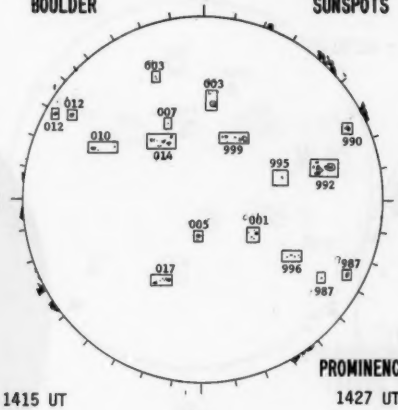
1427 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1415 UT

Sp

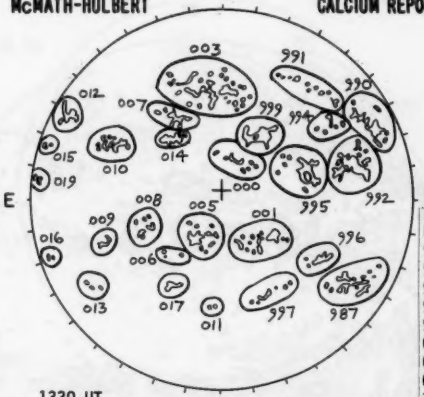
PROMINENCES

1427 UT

McMATH-HULBERT

Np

CALCIUM REPORT



E W

1330 UT

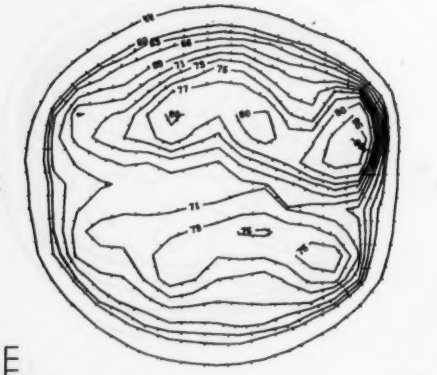
Sp

GOOD	S
90-	4500-2.5
92-	3300-3.0
95-	1800-2.5
96-	0600-2.5
99-	1500-3.0
01-	1200-2.5
03-	2700-2.5
09-	0600-2.5
10-	1100-3.0
12-	1600-3.0
14-	0900-3.0
15-	0400-3.0
16-	0200-2.5
17-	0600-3.0

NOSC LA POSTA

Np

2.0 CM



E W

1734 UT

Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM

NO DATA

CALIBRATION

E W

---- UT

Sp

Ant. Temp. Unit 100° K

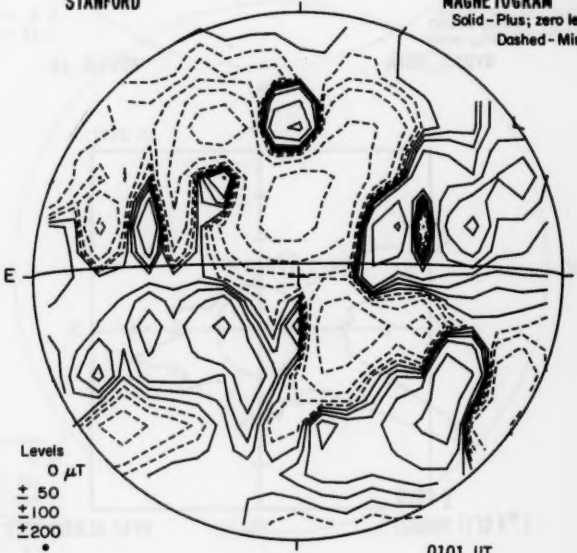
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

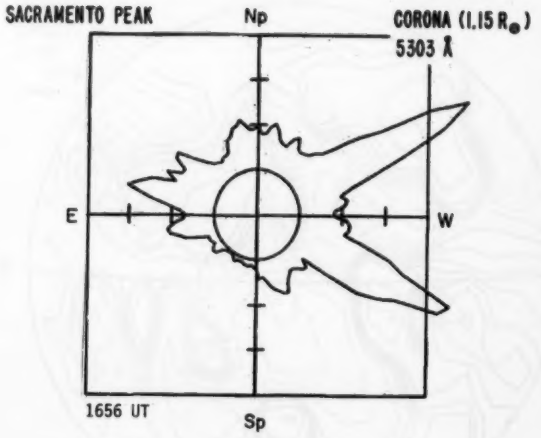
±100

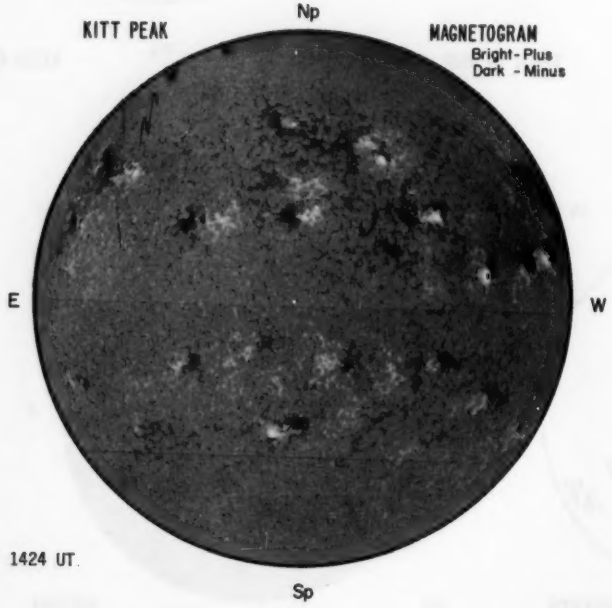
±200

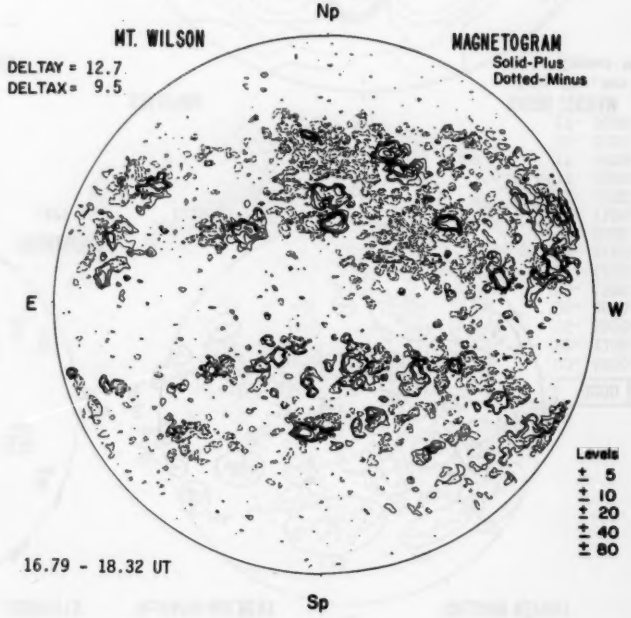
0101 UT

Sp

MAY 15, 1979 (P=-21.17, B_o=-2.70, L_o=115.99)





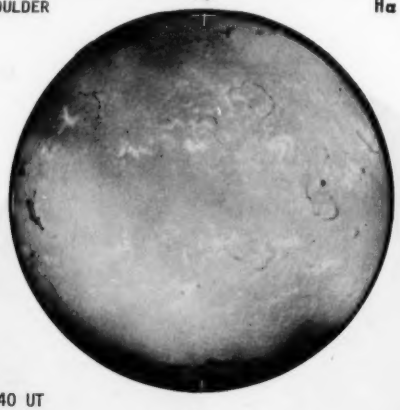


Sp

Sp

15

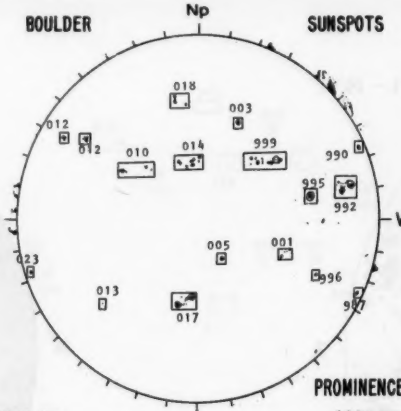
BOULDER Np Hα



E W

1340 UT Sp

BOULDER Np SUNSPOTS

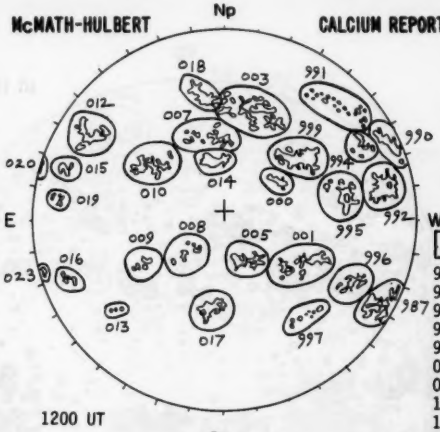


E W

PROMINENCES

1300 UT Sp 1340 UT

McMATH-HULBERT Np CALCIUM REPORT



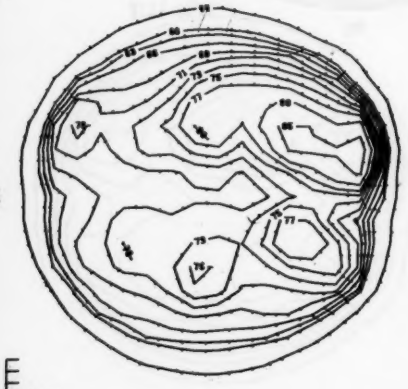
E W

1200 UT Sp

GOOD	M
90- 3800-2.5	
92- 3300-3.0	
95- 1500-2.5	
96- 0700-2.5	
99- 2000-3.0	
01- 1400-2.5	
03- 2100-2.5	
10- 1400-3.0	
12- 1900-3.0	
14- 1200-3.0	
15- 0600-3.0	
17- 1500-3.0	
18- 1400-2.5	
23- 0800-2.5	

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

NOSC LA POSTA Np 2.0 CM



E W

1612 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

CALIBRATION

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np

NO DATA

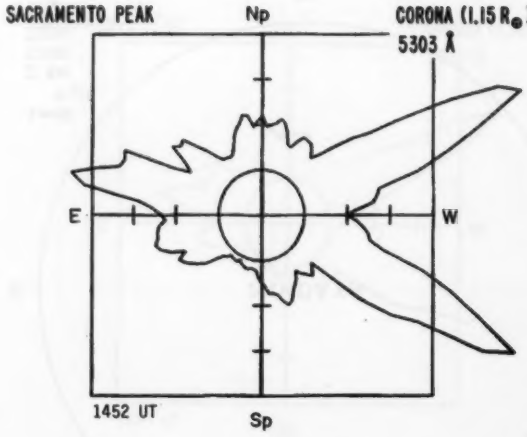
E W

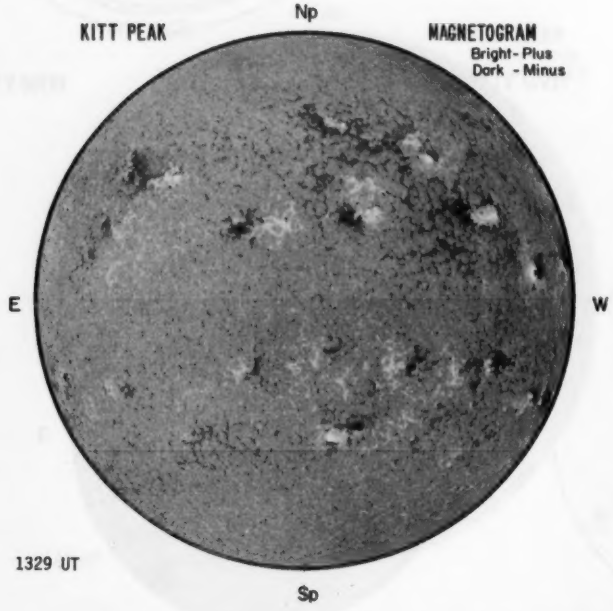
Levels 0 μT
± 50
±100
±200

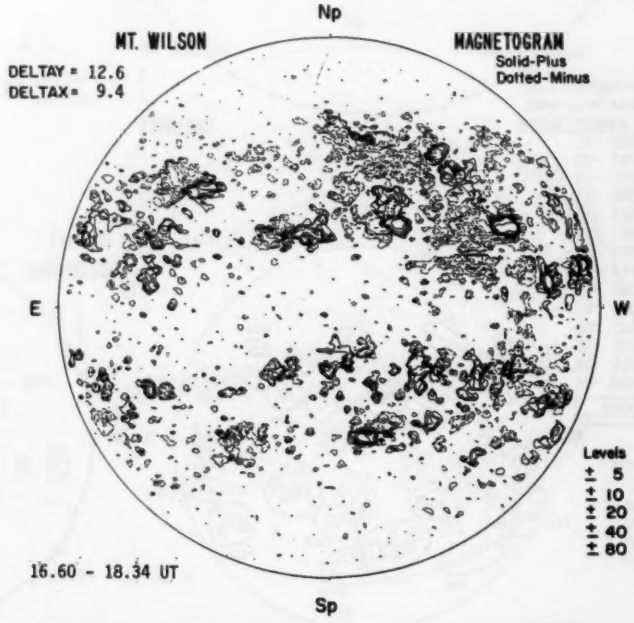
Sp

77
May 79

MAY 16, 1979 (P=-20.89, B_o=-2.58, L_o=102.77)





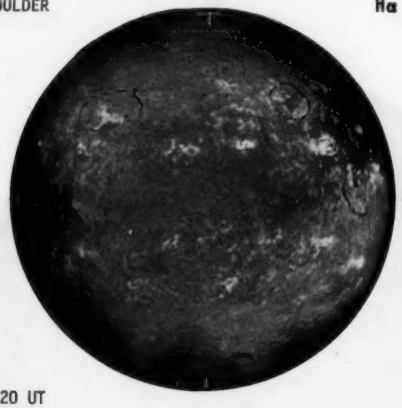


Sp

Sp

16

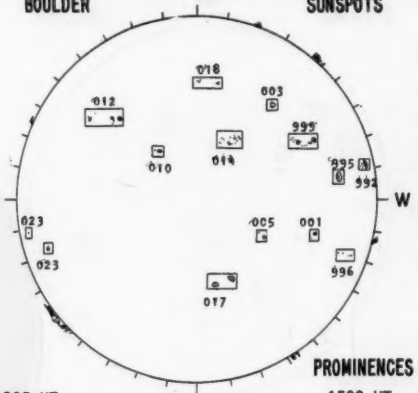
BOULDER Np Hα



E W

1520 UT Sp

BOULDER Np SUNSPOTS

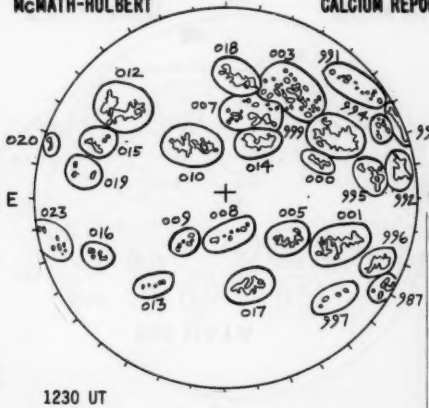


E W

PROMINENCES

1335 UT Sp 1520 UT

McMATH-HULBERT Np CALCIUM REPORT

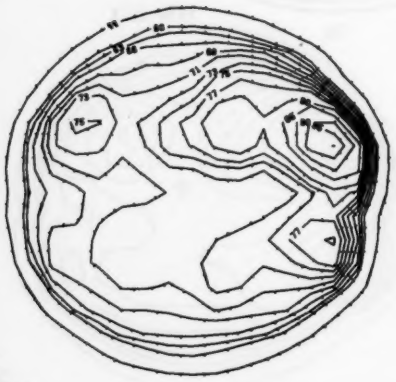


E W

1230 UT Sp

GOOD	M
92- 3300-3.0	
95- 1500-2.5	
96- 0900-3.0	
99- 2800-3.5	
01- 1700-2.5	
03- 1800-2.5	
10- 1400-3.0	
12- 2400-3.0	
14- 1400-3.0	
15- 0600-2.5	
17- 1400-2.5	
18- 1500-2.5	
20- 0400-2.5	

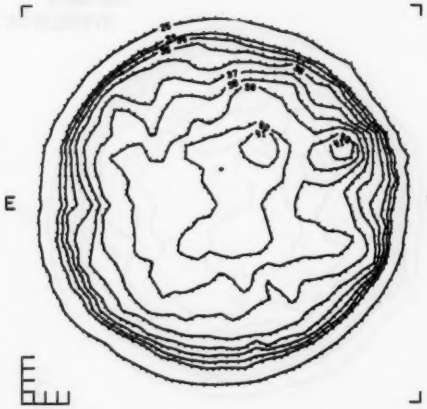
NOSC LA POSTA Np 2.0 CM



E W

1611 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1649 UT Sp Ant. Temp. Unit 100° K

STANFORD Np

NO DATA

E W

Levels
0 μT
± 50
±100
±200

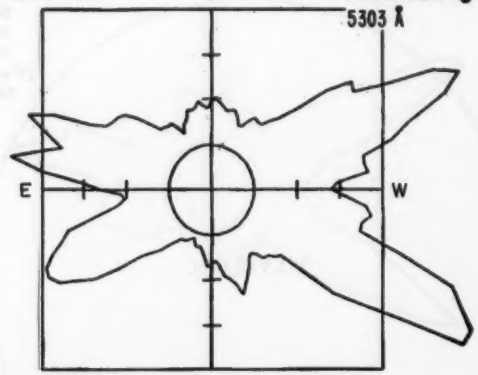
Sp

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

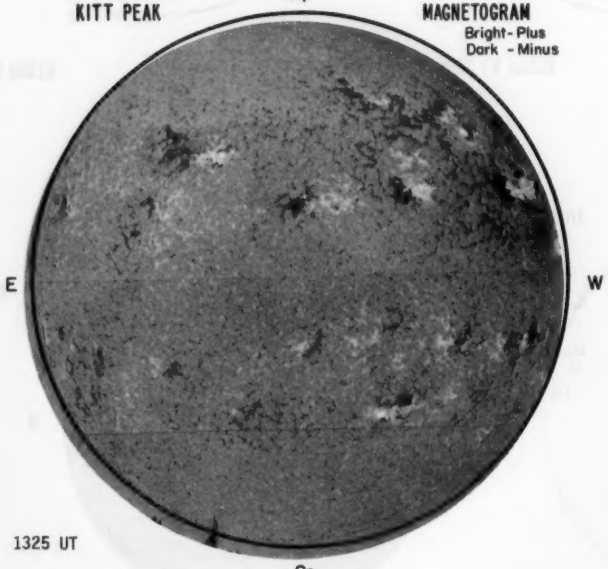
79
May 79

MAY 17, 1979 (P=-20.61, B_o=-2.47, L_o=89.54)

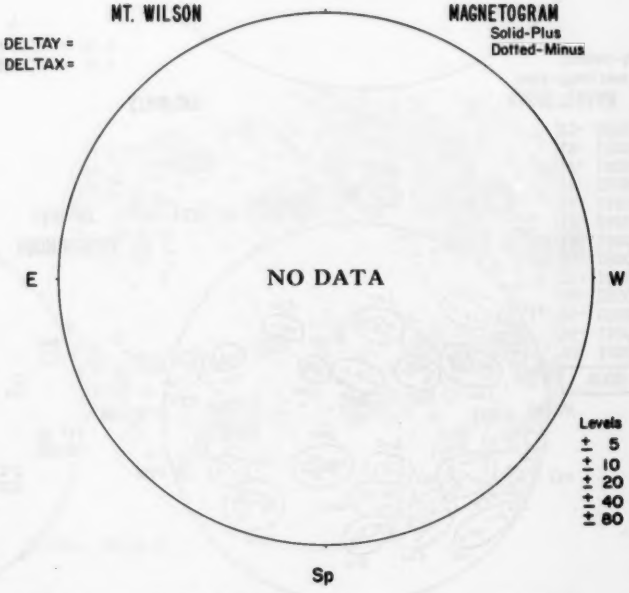
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

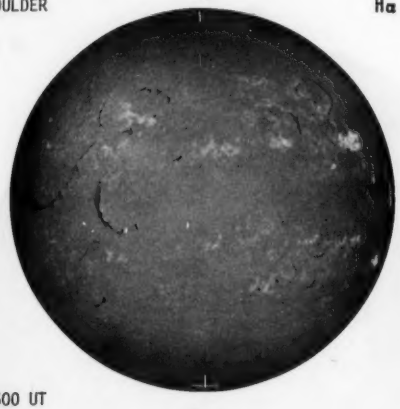


Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX=



17

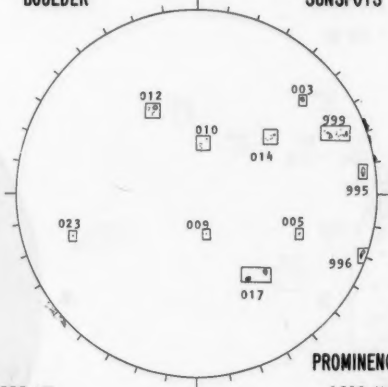
BOULDER Np Hα



E W

1600 UT Sp

BOULDER Np SUNSPOTS



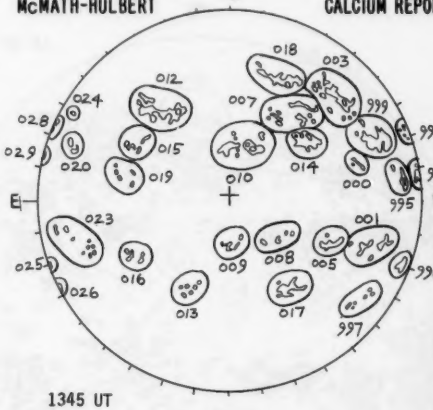
E W

1555 UT Sp

PROMINENCES

1600 UT

McMATH-HULBERT Np CALCIUM REPORT



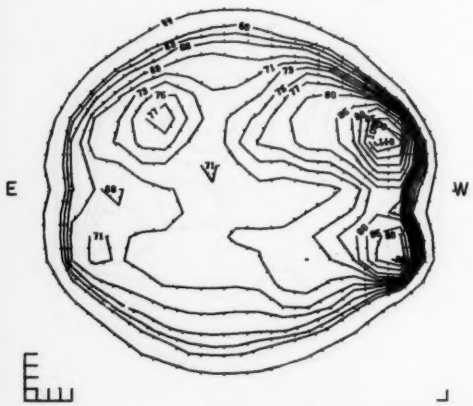
E W

1345 UT Sp

FAIR	S

92- 0800-2.5
95- 1300-2.5
96- 1100-3.5
99- 3200-3.0
01- 1400-2.5
03- 2100-2.5
05- 0600-2.5
10- 1400-2.5
12- 2200-3.0
14- 1500-3.0
17- 1200-2.5
18- 1500-2.5
20- 0400-2.5

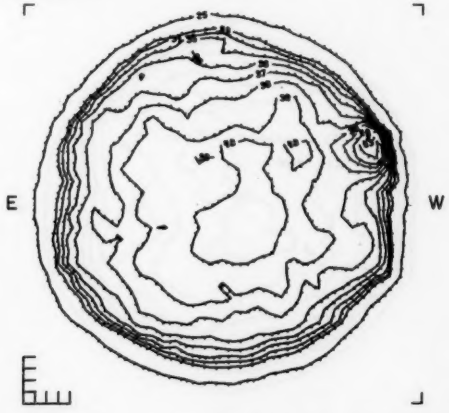
NOSC LA POSTA Np 2.0 CM



E W

1513 UT Sp Ant. Temp. Unit 100° K

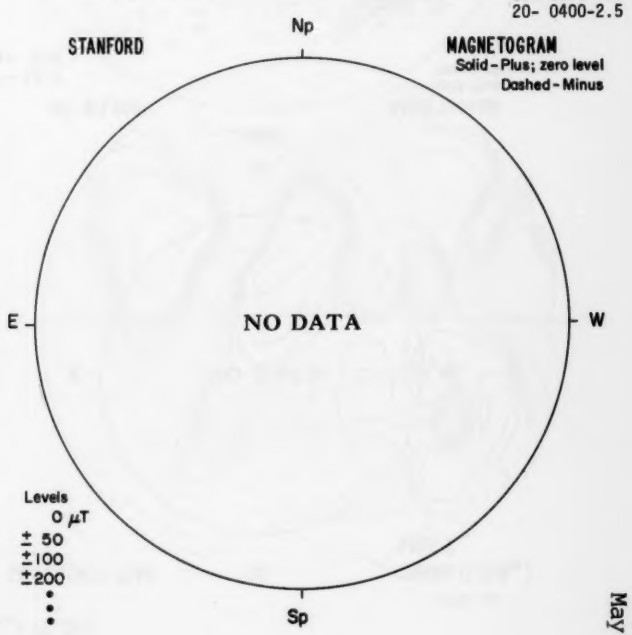
NOSC LA POSTA Np 8.6 MM



E W

1546 UT Sp Ant. Temp. Unit 100° K

STANFORD Np



E W

Sp

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

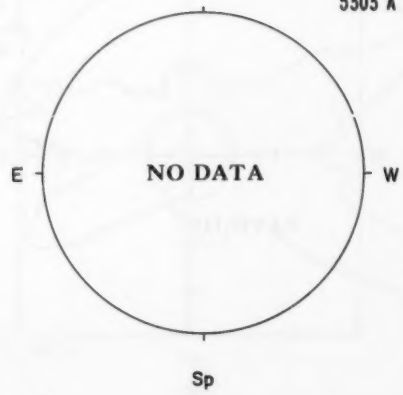
Levels
0 μT
± 50
±100
±200
• • •

81
May 79

MAY 18, 1979 (P=-20.33, B_o=-2.35, L_o=76.31)

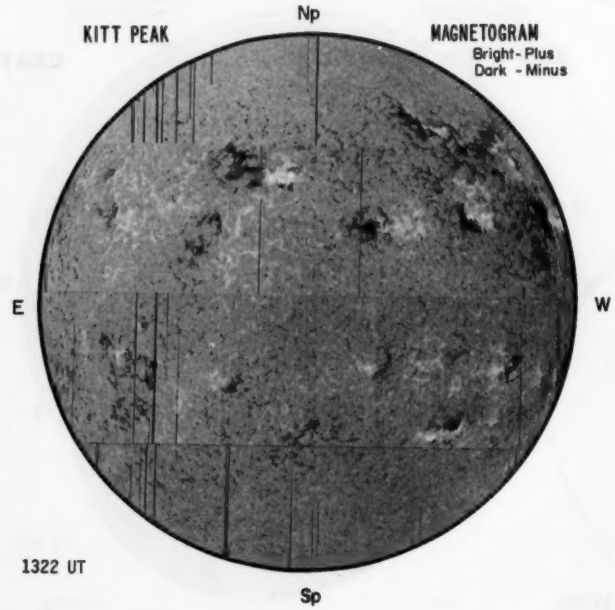
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

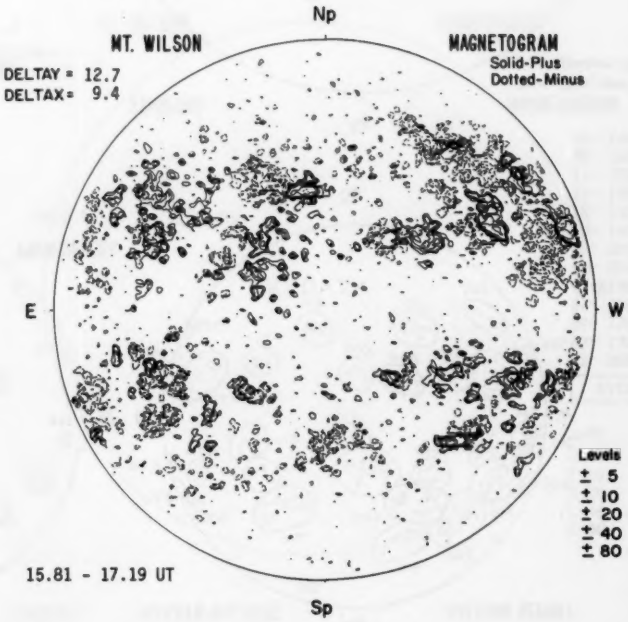


1322 UT

MT. WILSON

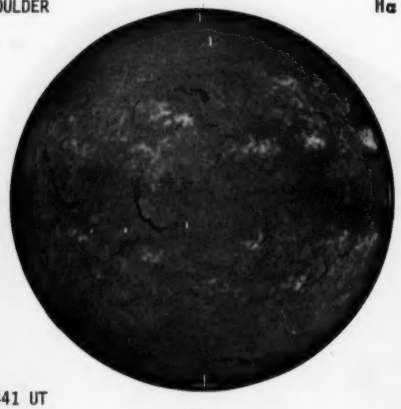
DELTAY = 12.7
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



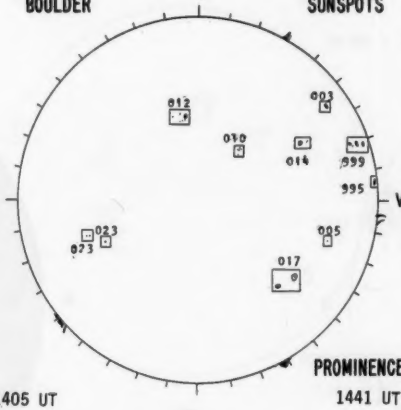
15.81 - 17.19 UT

BOULDER Np Hα



1441 UT Sp

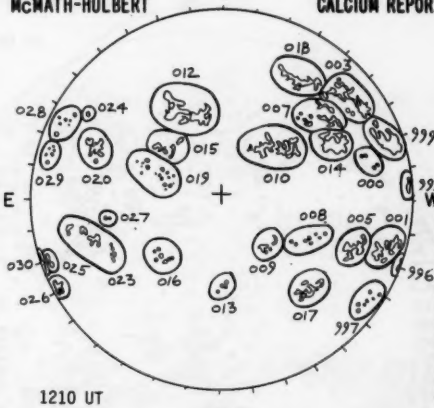
BOULDER Np SUNSPOTS



PROMINENCES

1405 UT 1441 UT Sp

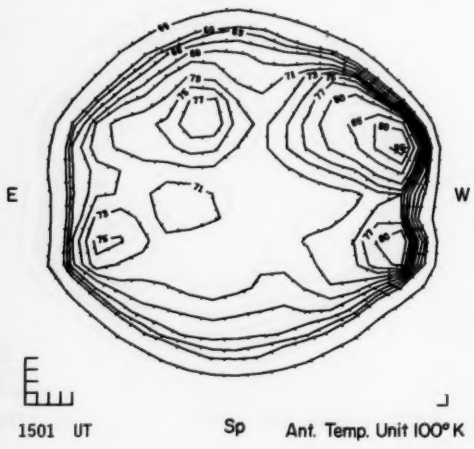
McMATH-HULBERT Np CALCIUM REPORT



1210 UT Sp

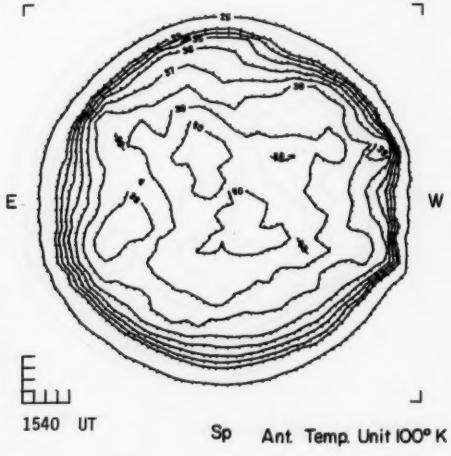
FAIR	M
96-	0800-2.5
99-	3600-3.0
01-	1500-2.5
05-	0800-2.5
10-	1400-2.5
12-	2500-3.0
14-	1800-3.0
17-	1200-2.5
18-	1400-2.5
23-	1000-2.5
30-	1200-2.5

NOSC LA POSTA Np 2.0 CM



1501 UT Sp Ant. Temp. Unit 100° K

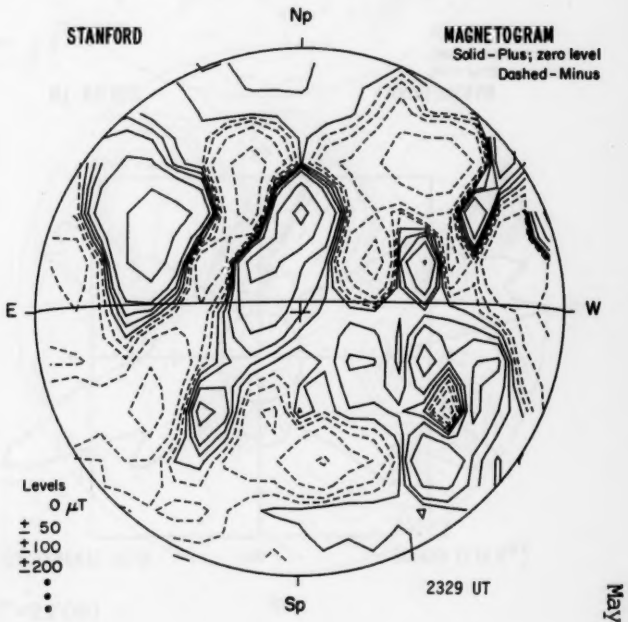
NOSC LA POSTA Np 8.6 MM



1540 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

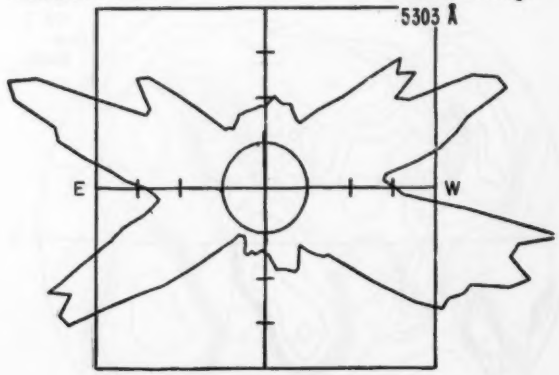


2329 UT Sp

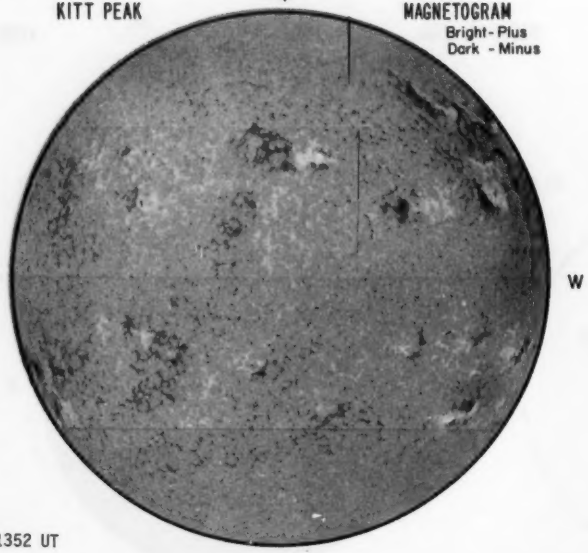
83
May 79

MAY 19, 1979 (P=-20.03, B_c=-2.24, L_o=63.09)

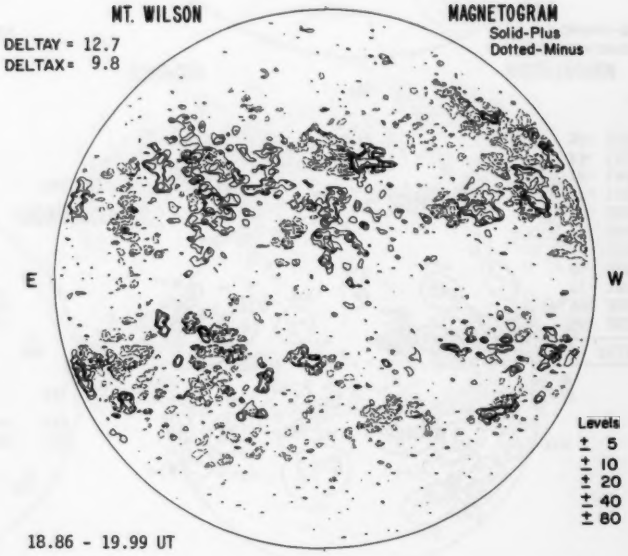
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.8

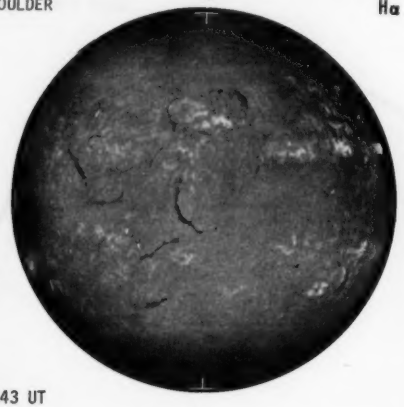


Sp

18.66 - 19.99 UT

Sp

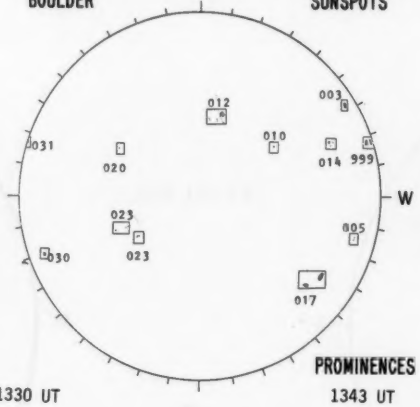
BOULDER Np Hα



E W

1343 UT Sp

BOULDER Np SUNSPOTS



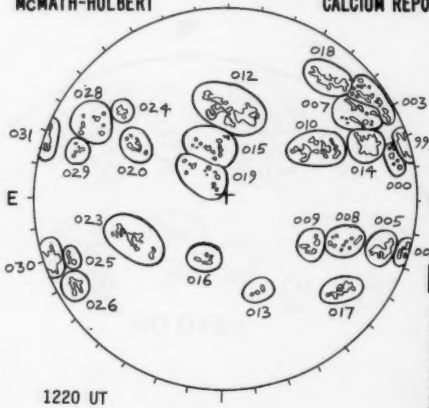
E W

1330 UT Sp

PROMINENCES

1343 UT

McMATH-HULBERT Np CALCIUM REPORT

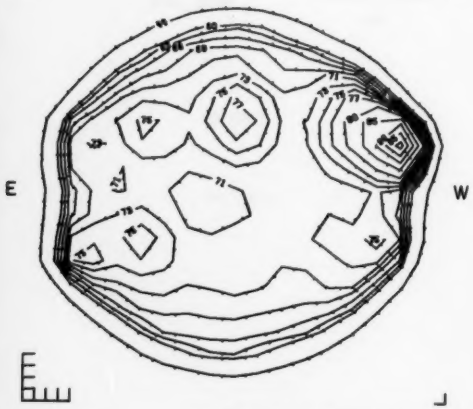


E W

1220 UT Sp

FAIR	M
99- 3300-3.0	
05- 0900-2.5	
10- 1500-2.5	
12- 2500-3.0	
14- 2400-3.5	
17- 1200-2.5	
26- 0700-2.5	
30- 2500-3.0	

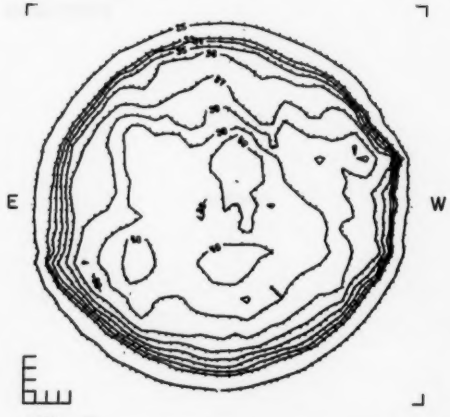
NOSC LA POSTA Np 2.0 CM



E W

1551 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



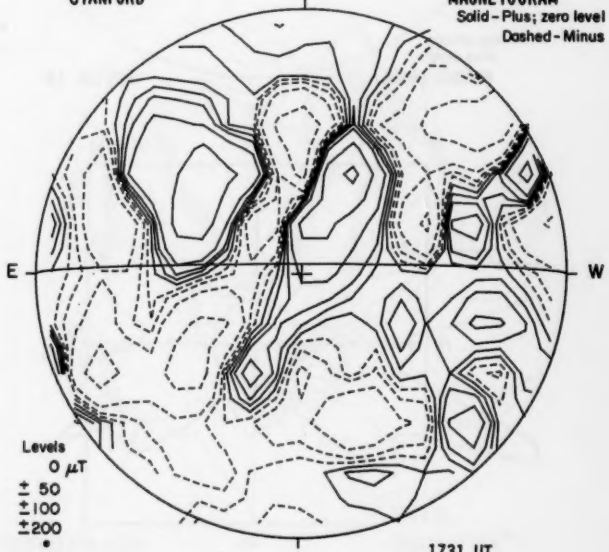
E W

1623 UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

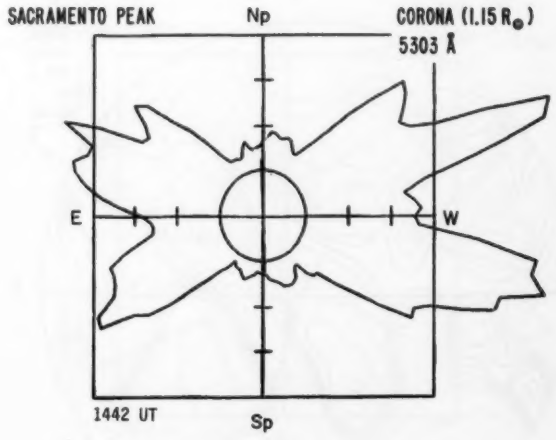
± 50

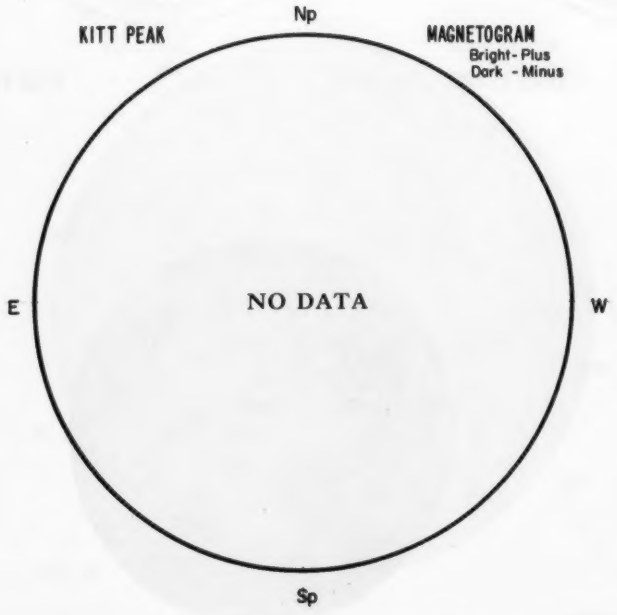
±100

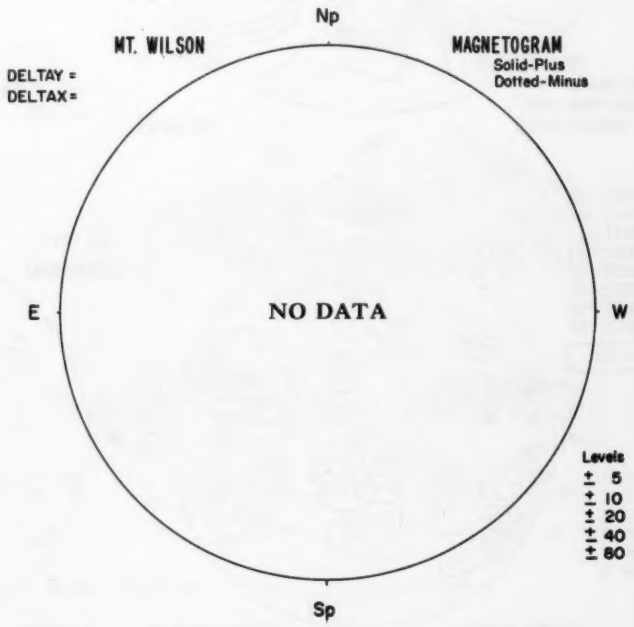
±200

1731 UT Sp

MAY 20, 1979 (P=-19.73, B_o=-2.12, L_o=49.86)







Sp

Sp

20

SACRAMENTO PEAK Np Hα

NO DATA

E W

Sp

BOULDER Np SUNSPOTS

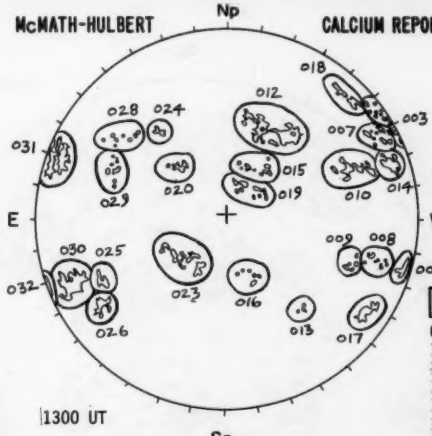
NO DATA

E W

PROMINENCES

Sp

McMATH-HULBERT Np CALCIUM REPORT



E W

1300 UT

Sp

FAIR	M
05- 0900-2.5	
10- 1700-2.5	
12- 2500-3.5	
14- 2300-3.5	
17- 1200-2.5	
18- 1400-2.5	
25- 0600-3.0	
30- 2800-3.0	
31- 3400-2.5	

NOSC LA POSTA Np 2.0 CM

NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

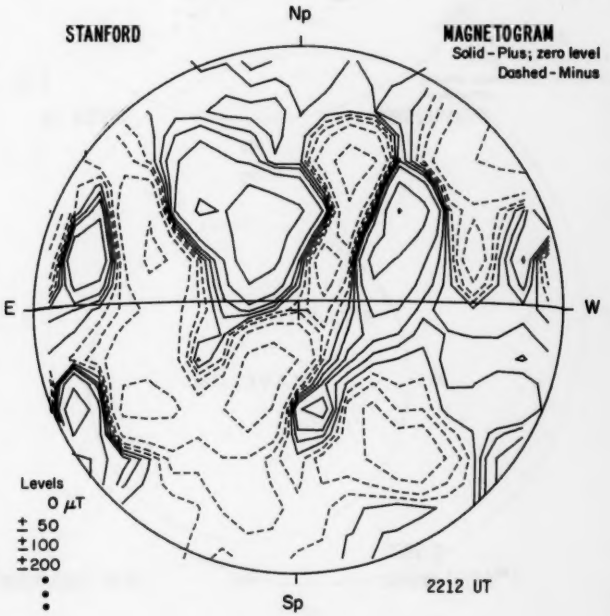
NO DATA

E WEATHER W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Sp

2212 UT

MAY 21, 1979 (P = -19.43, B_o = -2.01, L_o = 36.63)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

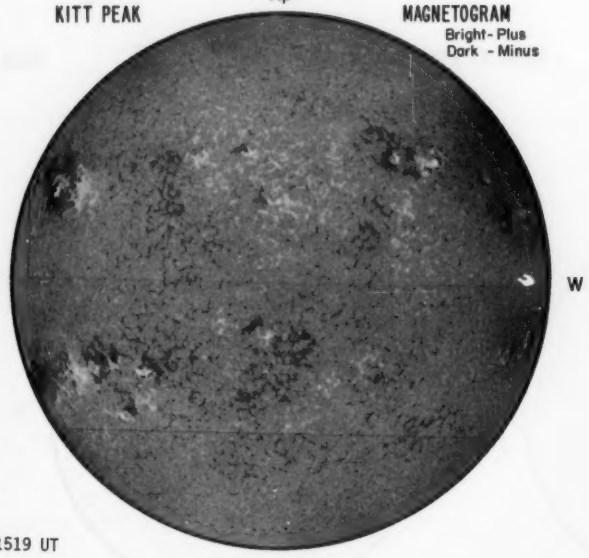
E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1519 UT

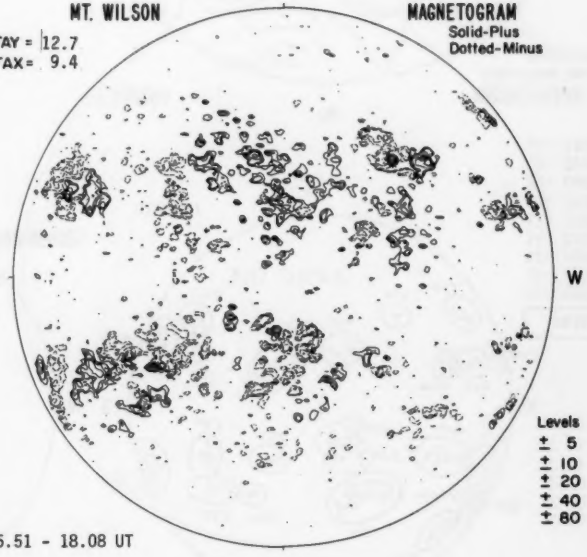
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.4



E

W

Levels
± 5
± 10
± 20
± 40
± 80

16.51 - 18.08 UT

Sp

Sp

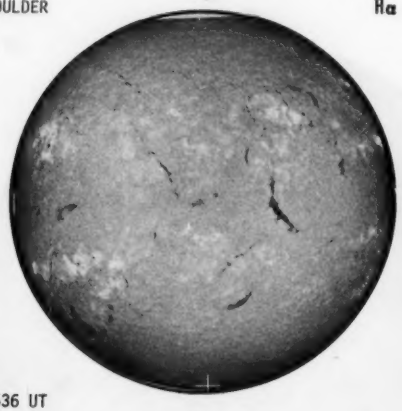
Sp

21

BOULDER

Np

Hα



E

W

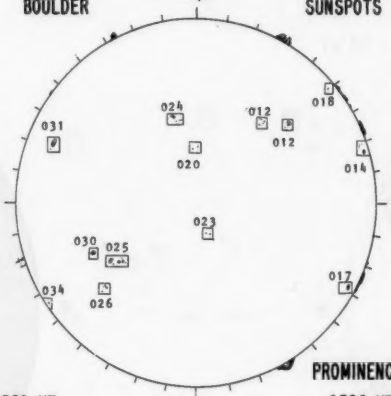
1536 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

1520 UT

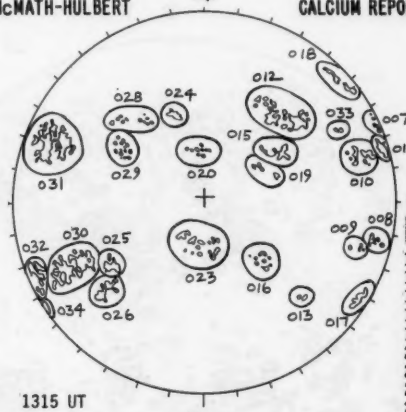
1536 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

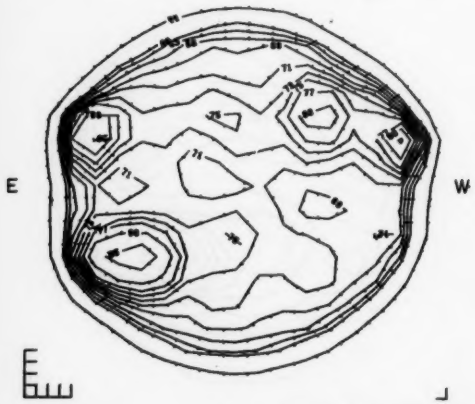
Sp

FAIR	M
10- 1500-2.5	
12- 2500-3.0	
14- 2700-3.0	
17- 1200-2.5	
18- 1200-3.0	
23- 0900-2.5	
24- 0500-3.0	
25- 0900-3.0	
26- 0900-2.5	
30- 3400-3.5	
31- 3900-3.0	
32- 2300-2.5	

NOSC LA POSTA

Np

2.0 CM



E

W

1612 UT

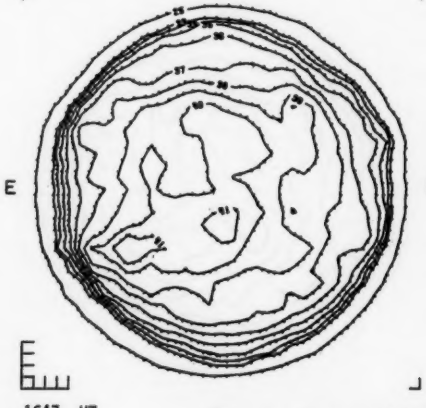
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1647 UT

Sp

Ant. Temp. Unit 100° K

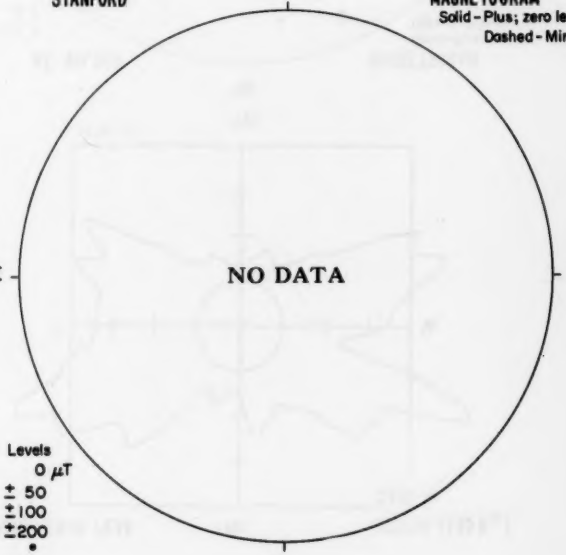
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

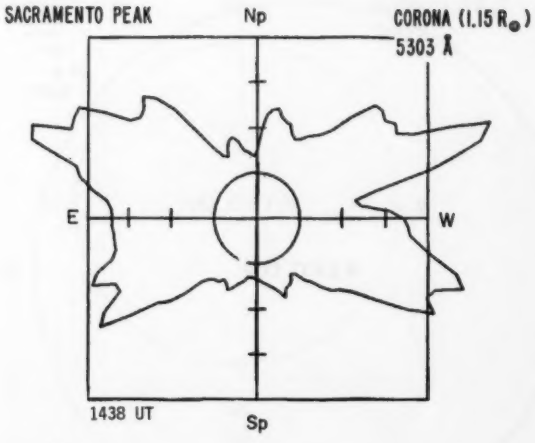
±200

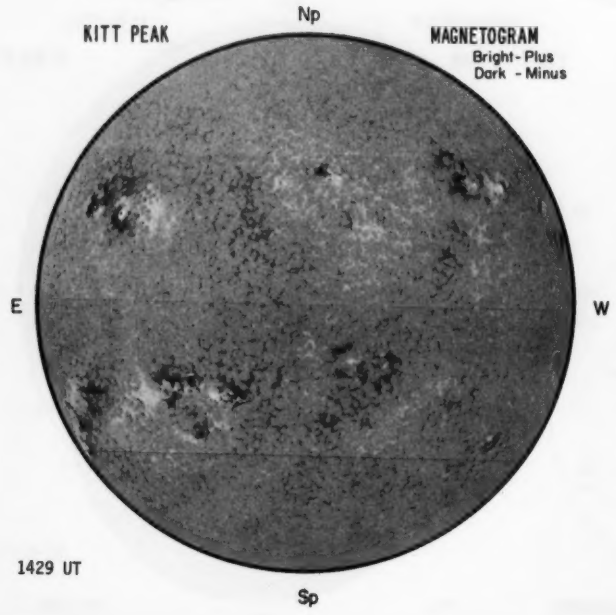
Sp

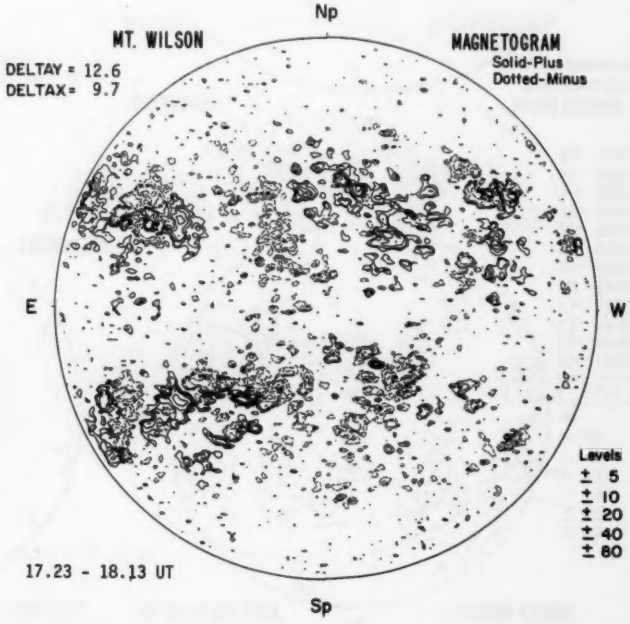
89

May 79

MAY 22, 1979 (P=-19.12, B_o=-1.89, L_o=23.40)







1429 UT

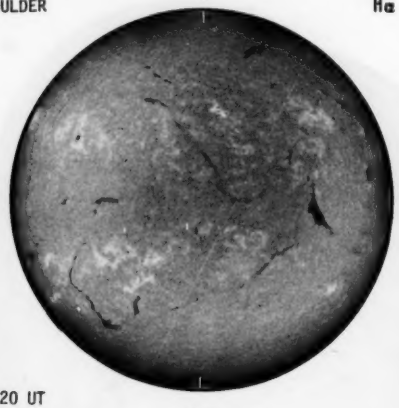
Sp

17:23 - 18:13 UT

Sp

22

BOULDER Np Hα

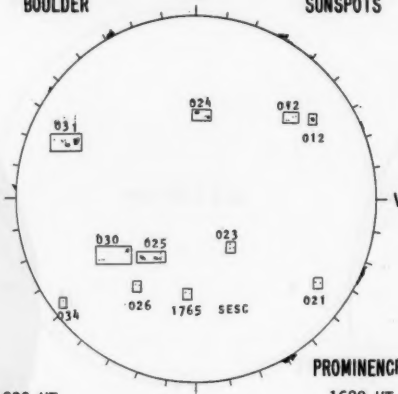


E W

1620 UT

Sp

BOULDER Np SUNSPOTS



E W

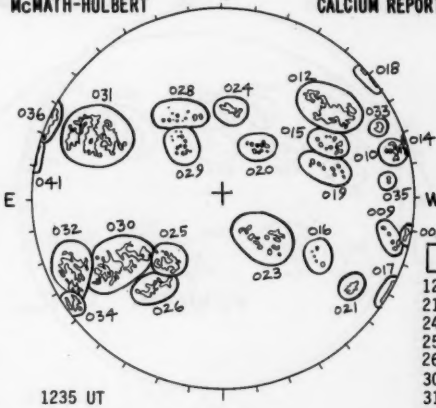
1230 UT

Sp

PROMINENCES

1620 UT

McMATH-HULBERT Np CALCIUM REPORT



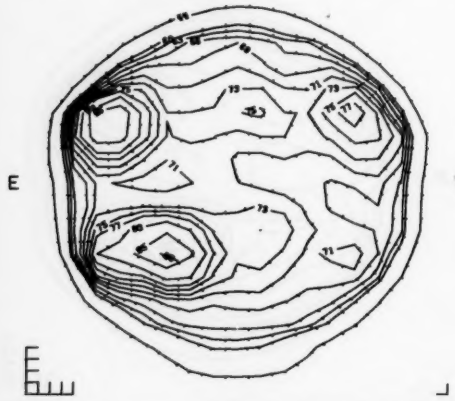
E W

1235 UT

Sp

GOOD	M
12- 3300-3.0	
21- 0600-3.0	
24- 0700-2.5	
25- 1000-2.5	
26- 0700-2.5	
30- 3500-3.5	
31- 4500-3.0	
32- 3000-3.0	
33- 0500-2.5	
34- 1600-2.5	
36- 1800-2.5	

NOSC LA POSTA Np 2.0 CM

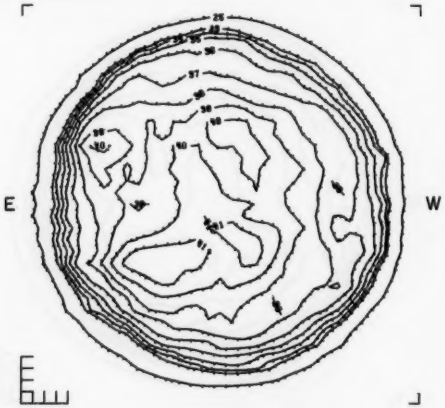


E W

1509 UT

Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM



E W

1537 UT

Sp Ant. Temp. Unit 100° K

STANFORD Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

NO DATA

E W

Levels

0 μT

± 50

±100

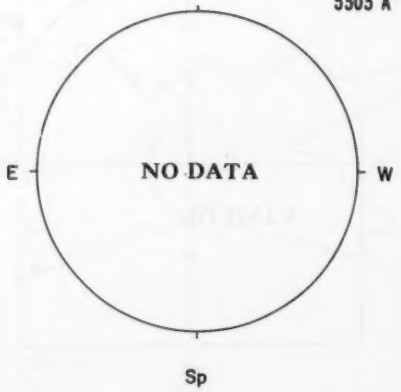
±200

Sp

MAY 23, 1979 (P = -18.80, B_o = -1.77, L_o = 10.17)

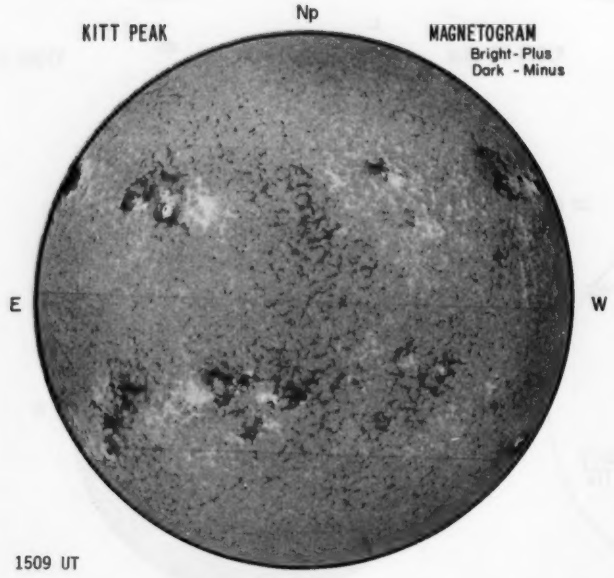
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

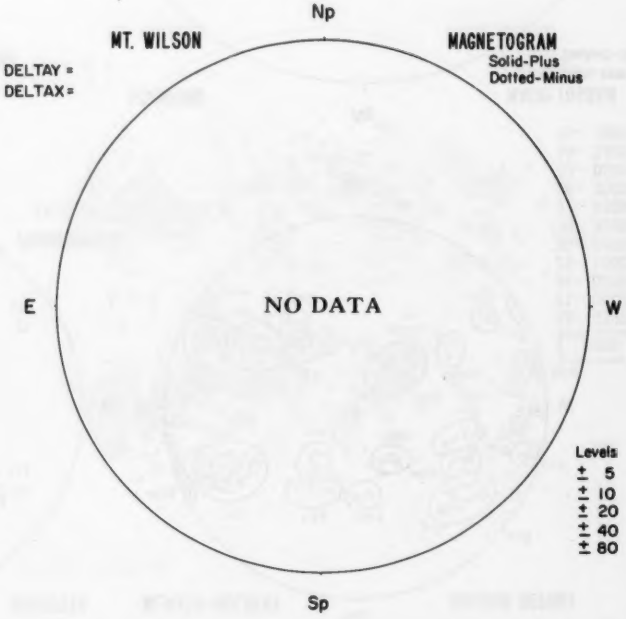


1509 UT

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

1509 UT

Sp

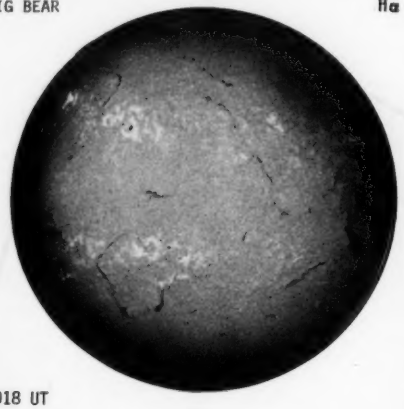
Sp

23

BIG BEAR

Np

Hα



E

W

2018 UT

Sp

BOULDER

Np

SUNSPOTS

E

NO DATA

W

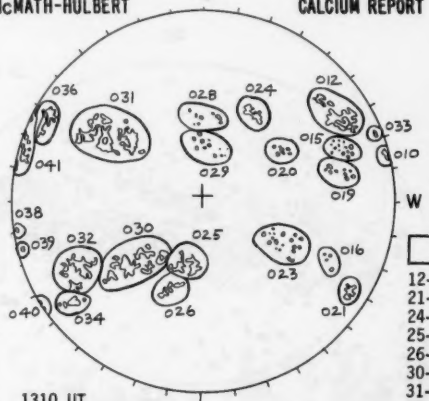
PROMINENCES

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

1310 UT

Sp

POOR	M
12-	3000-3.0
21-	0800-2.5
24-	0700-3.0
25-	1000-2.5
26-	0500-2.5
30-	3200-3.0
31-	4000-3.0
32-	2700-2.5
36-	2300-3.0

NOSC LA POSTA

Np

2.0 CM

E

W

1518 UT

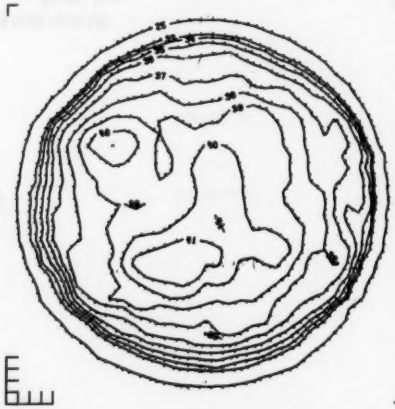
Sp

Ant. Temp. Unit 100° K

NOSC LA POSTA

Np

8.6 MM



E

W

1546 UT

Sp

Ant. Temp. Unit 100° K

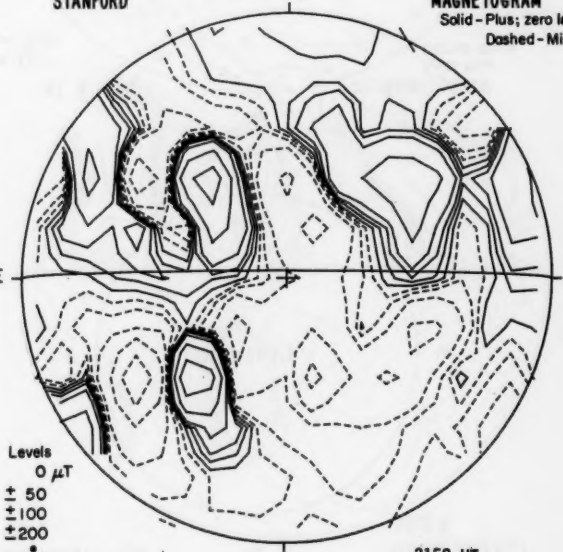
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

2152 UT

Sp

93

May 79

MAY 24, 1979 (P=-18.47, B_o=-1.65, L_o=356.94)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E — NO DATA — W

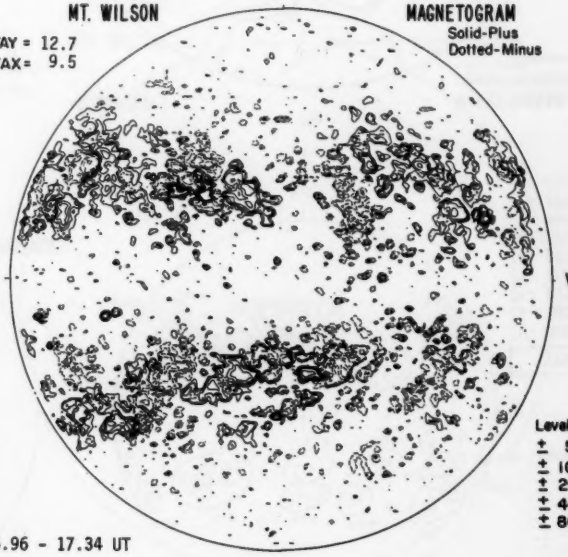
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX= 9.5



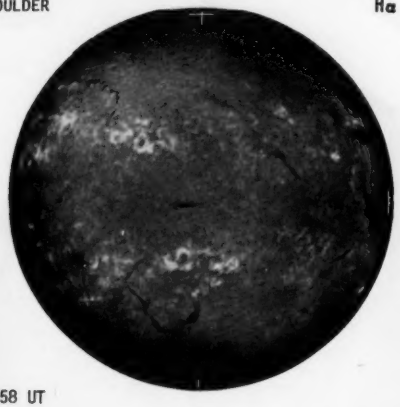
15.96 - 17.34 UT

Sp

24

24

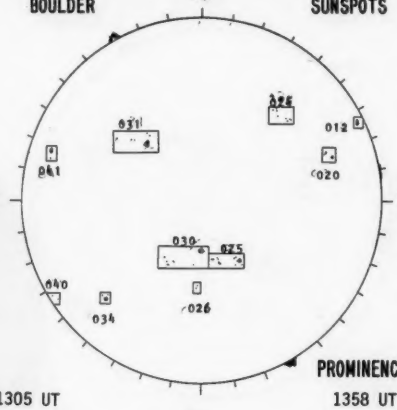
BOULDER Np Hα



E W

1358 UT Sp

BOULDER Np SUNSPOTS



E W

1305 UT Sp PROMINENCES 1358 UT

McMATH-HULBERT Np CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA Np 2.0 CM

E W

1558 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

EQUIPMENT

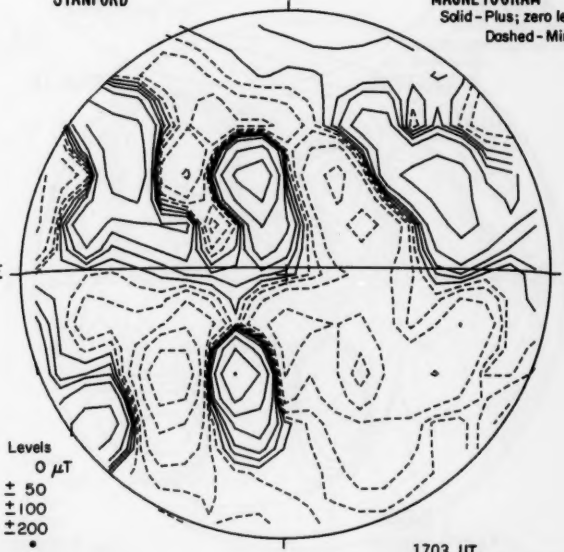
E W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1703 UT Sp

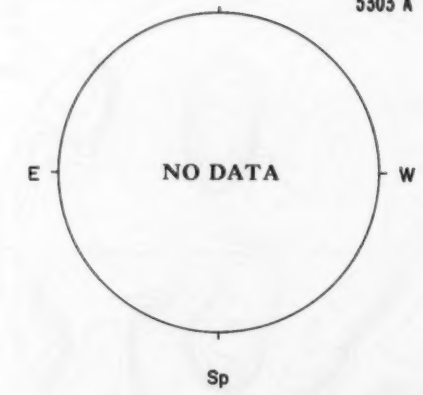
95

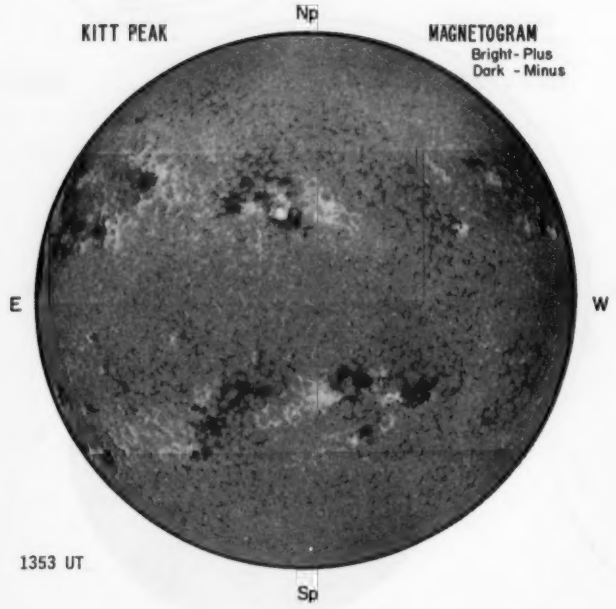
May 79

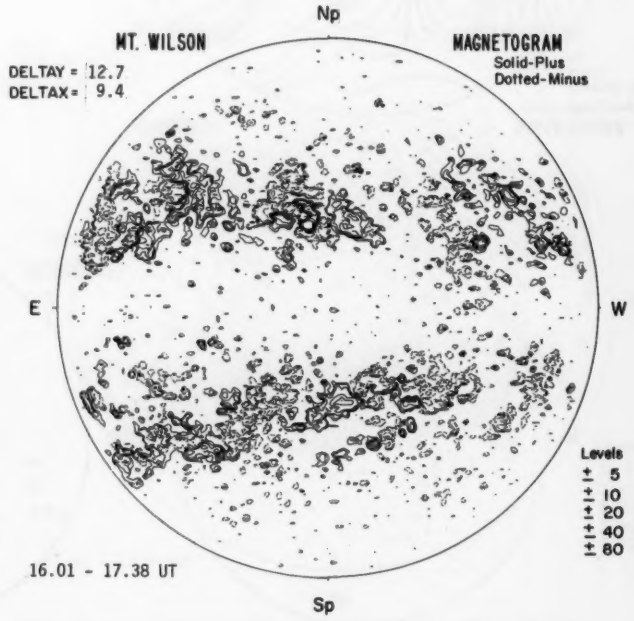
MAY 25, 1979 ($P_{\odot}$=-18.14, $B_{\odot}$=-1.54, $L_{\odot}$=343.71)

SACRAMENTO PEAK

CORONA (1.15 $R_{\odot}$)
5303 Å



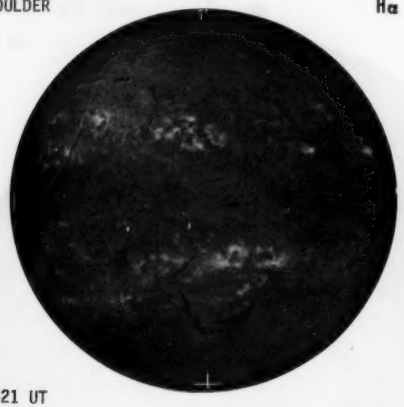




25

25

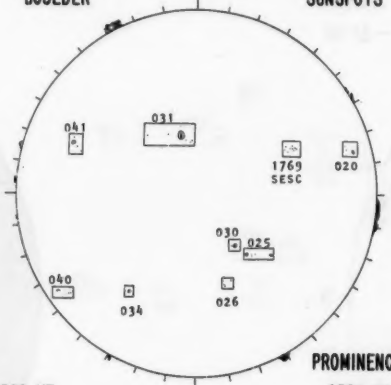
BOULDER Np Hα



E W

1521 UT Sp

BOULDER Np SUNSPOTS



E W

1530 UT Sp

PROMINENCES

1521 UT

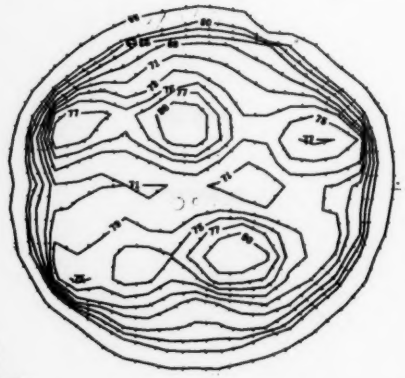
McMATH-HULBERT Np CALCIUM REPORT

NO DATA

E W

Sp

NOSC LA POSTA Np 2.0 CM



E W

1449 UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

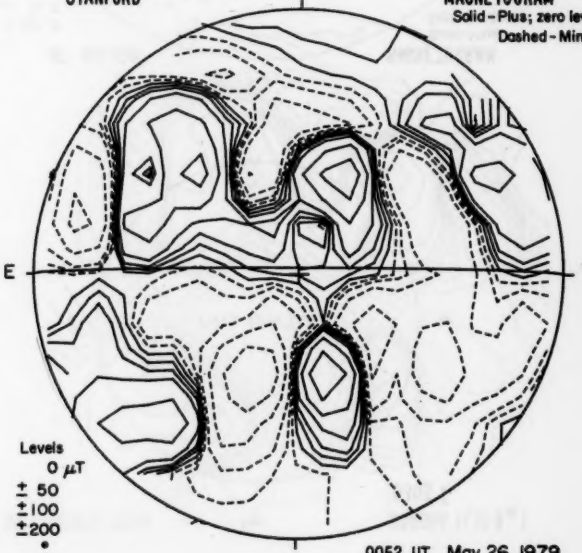
WEATHER

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

0052 UT May 26, 1979

97

May 79

MAY 26, 1979 (P = -17.81, B_o = -1.42, L_o = 330.48)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

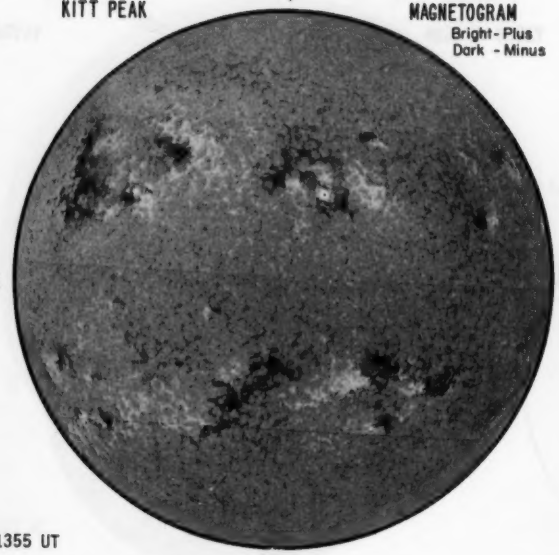
E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1355 UT

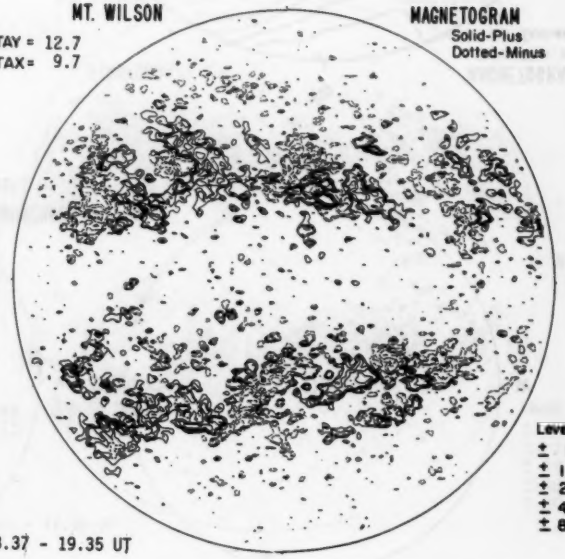
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7



E W

Levels
± 5
± 10
± 20
± 40
± 80

18.37 - 19.35 UT

Sp

26

SACRAMENTO PEAK

Np

Hα

BOULDER

Np

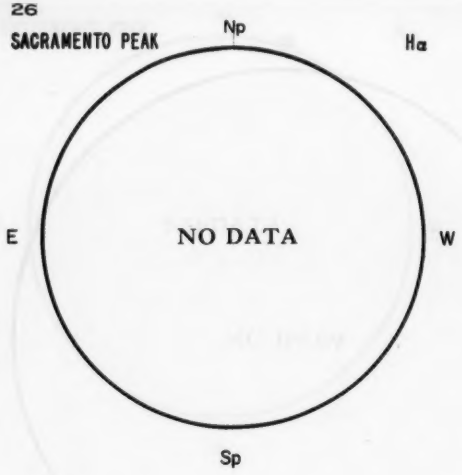
SUNSPOTS

McMATH-HULBERT

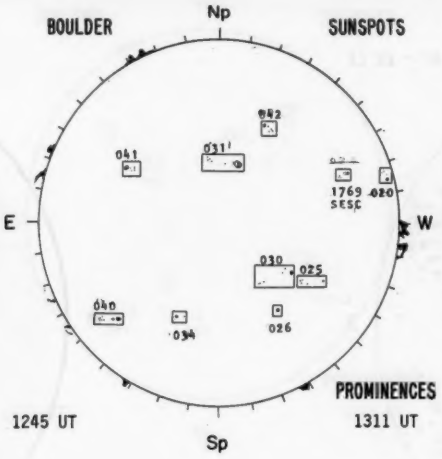
Np

CALCIUM REPORT

SACRAMENTO PEAK Hα



BOULDER SUNSPOTS

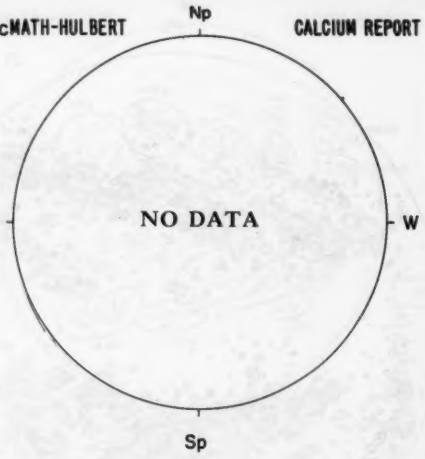


1245 UT

PROMINENCES

1311 UT

McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

NO DATA

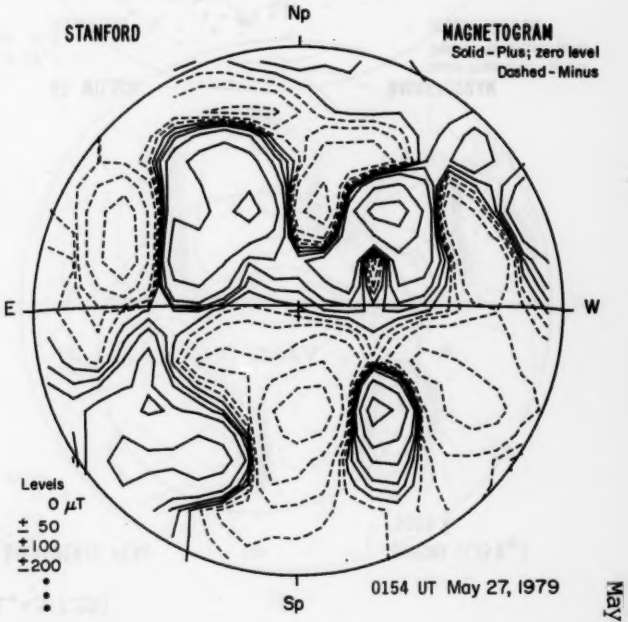
E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



0154 UT May 27, 1979

MAY 27, 1979 (P = -17.47, B_o = -1.30, L_o = 317.25)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E — NO DATA — W

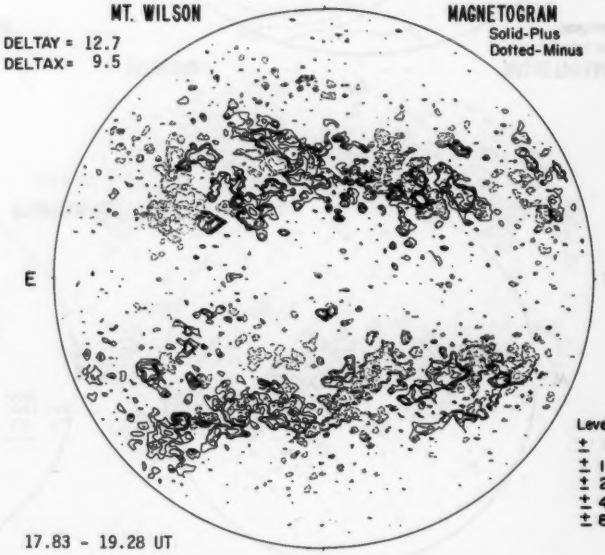
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.5



17.83 - 19.28 UT

27

SACRAMENTO PEAK

Np

Hα

BOULDER

Np

SUNSPOTS

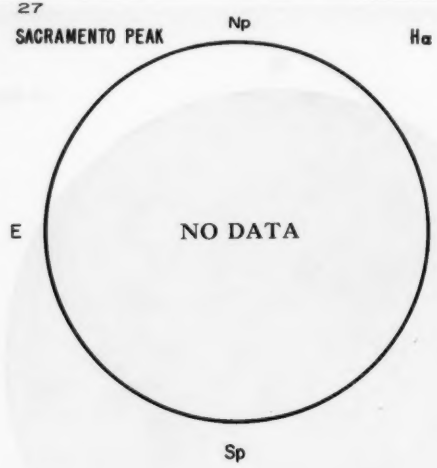
McMATH-HULBERT

Np

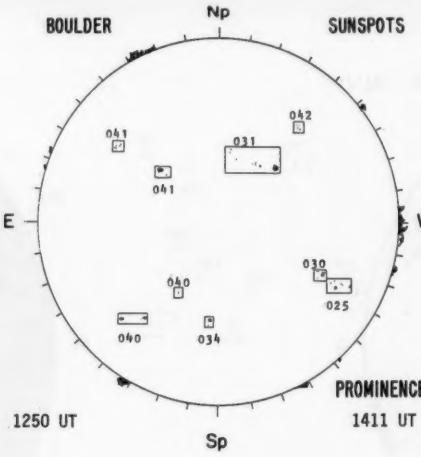
CALCIUM REPORT

27

SACRAMENTO PEAK Hα

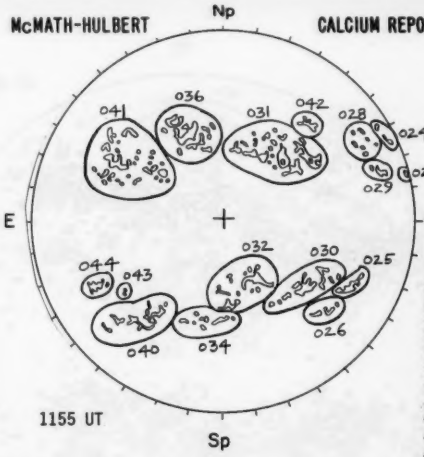


BOULDER SUNSPOTS



1250 UT

McMATH-HULBERT CALCIUM REPORT



1155 UT

FAIR	S
25-	0900-2.5
29-	0400-2.5
30-	2300-2.5
31-	4400-3.0
36-	2400-2.5
40-	1800-3.0
41-	3900-3.0
43-	0100-2.5
44-	0800-3.0

PROMINENCES

1411 UT

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

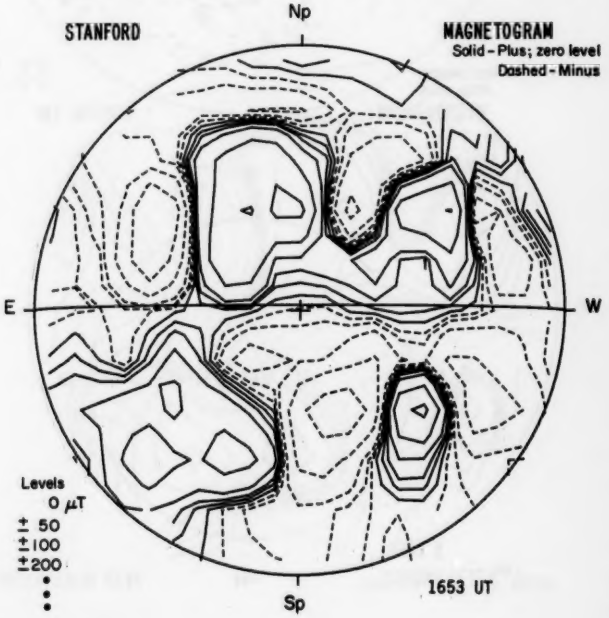
NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1653 UT

MAY 28, 1979 (P=-17.12, B_o=-1.18, L_o=304.02)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1349 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

E

W

Levels
± 5
± 10
± 20
± 40
± 80

17.70 - 18.84 UT

Sp

28

SACRAMENTO PEAK

Np

Hα

BOULDER

Np

SUNSPOTS

McMATH-HULBERT

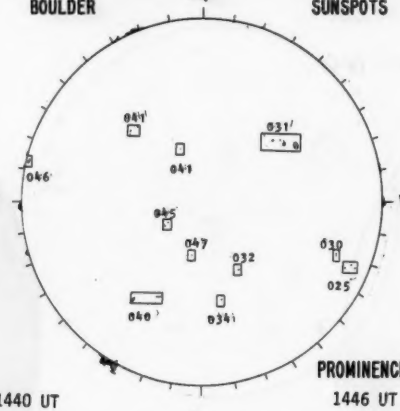
Np

CALCIUM REPORT

28

SACRAMENTO PEAK Np Hα

BOULDER Np SUNSPOTS

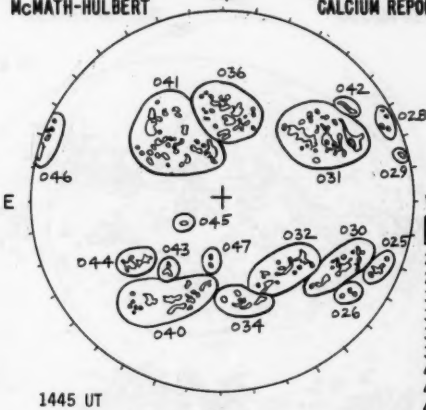


1440 UT

PROMINENCES

1446 UT

McMATH-HULBERT Np CALCIUM REPORT



1445 UT

GOOD	S
25- 0600	3.0
29- 0400	2.5
30- 2000	2.5
31- 4500	3.0
32- 2000	2.5
36- 2100	3.0
40- 2000	2.5
41- 3800	3.0
42- 0300	2.5
44- 0700	3.0
45- 0200	3.0
46- 1100	3.0

NOSC LA POSTA Np 2.0 CM

NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

NOSC LA POSTA Np 8.6 MM

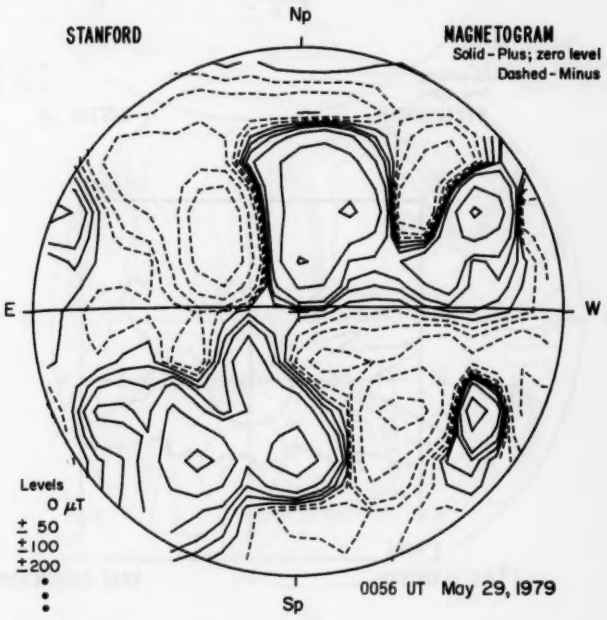
NO DATA

E EQUIPMENT W

---- UT Sp Ant. Temp. Unit 100° K

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

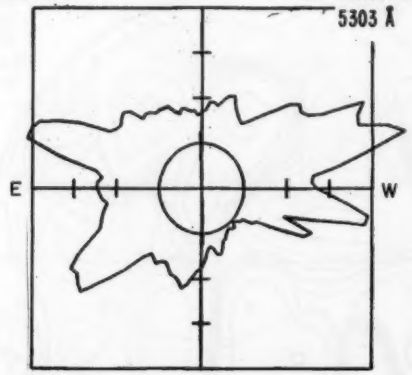


Levels
0 μT
± 50
±100
±200

0056 UT May 29, 1979

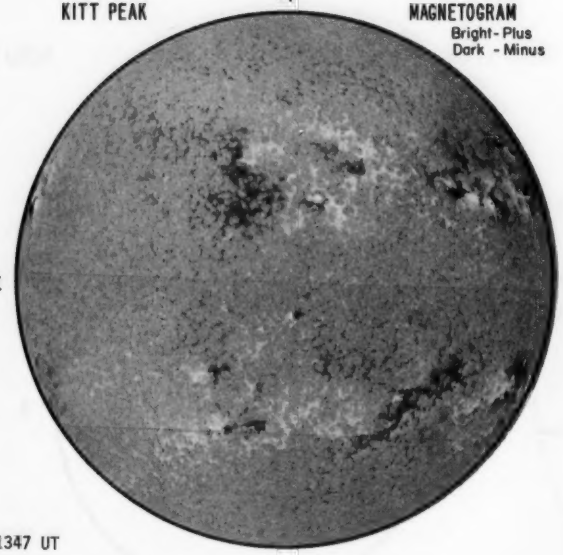
MAY 29, 1979 (P = -16.77, B_o = -1.06, L_o = 290.79)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1422 UT Sp

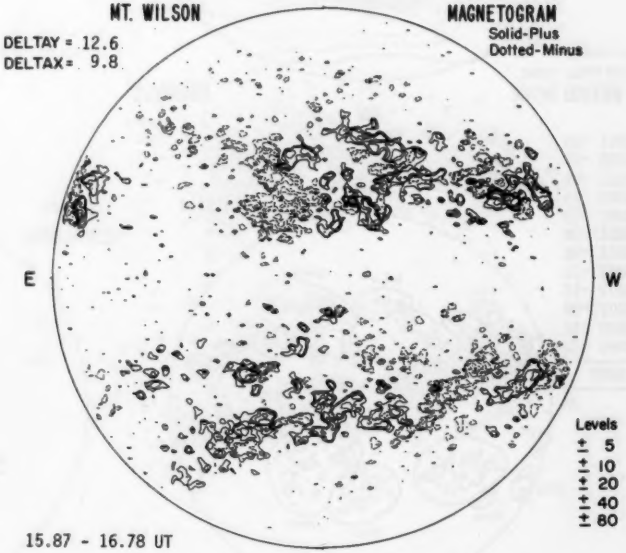
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1347 UT Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.8



15.87 - 16.78 UT Sp

29

SACRAMENTO PEAK Np

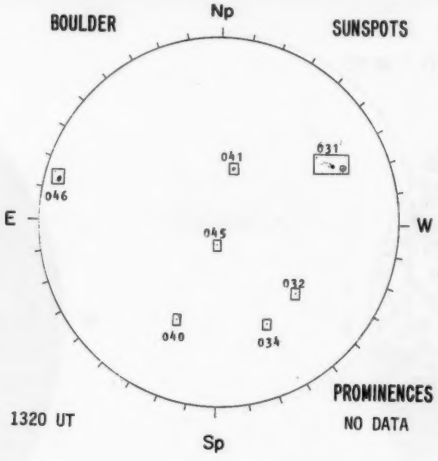
Np

Np

29

SACRAMENTO PEAK Hα

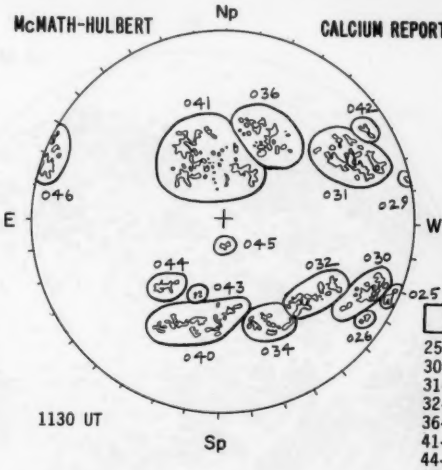
BOULDER SUNSPOTS



1320 UT

PROMINENCES
NO DATA

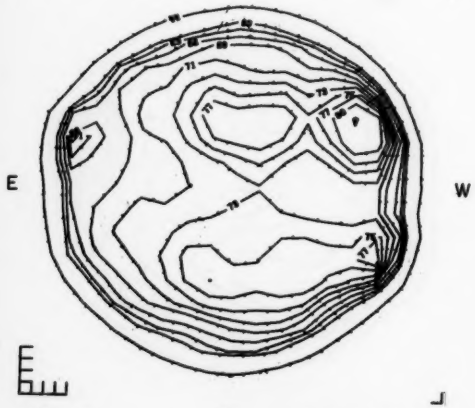
McMATH-HULBERT CALCIUM REPORT



1130 UT

FAIR	M
25-	0600-2.5
30-	2200-2.5
31-	3800-3.0
32-	2000-3.5
36-	1800-2.5
41-	3800-2.5
44-	0600-2.5
46-	3000-3.0

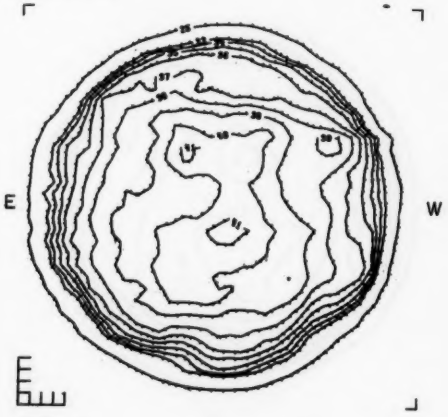
NOSC LA POSTA 2.0 CM



1527 UT

Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

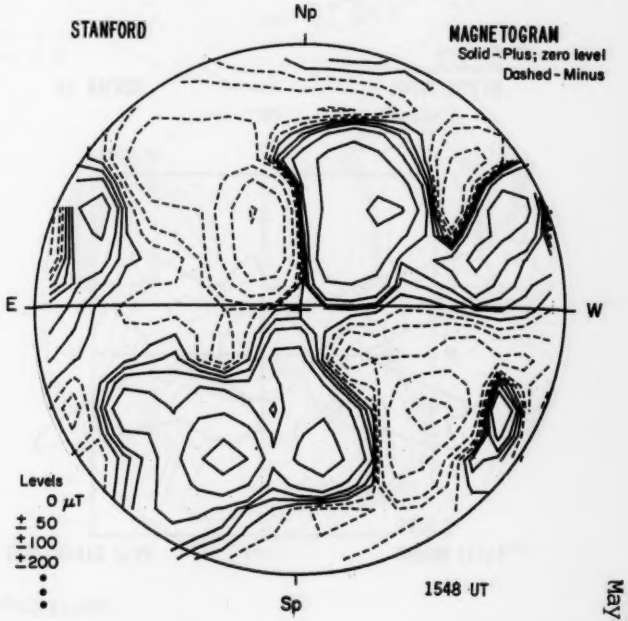


1557 UT

Ant. Temp. Unit 100° K

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

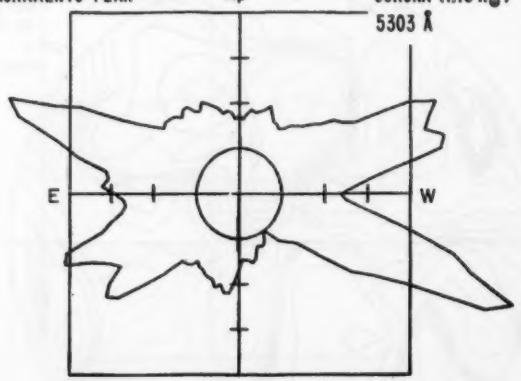


1548 UT

105
May 79

MAY 30, 1979 (P = -16.41, B_o = -0.94, L_o = 277.55)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



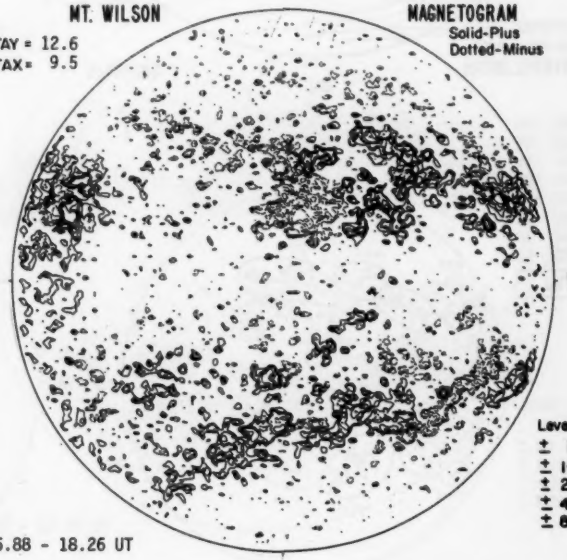
1457 UT Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

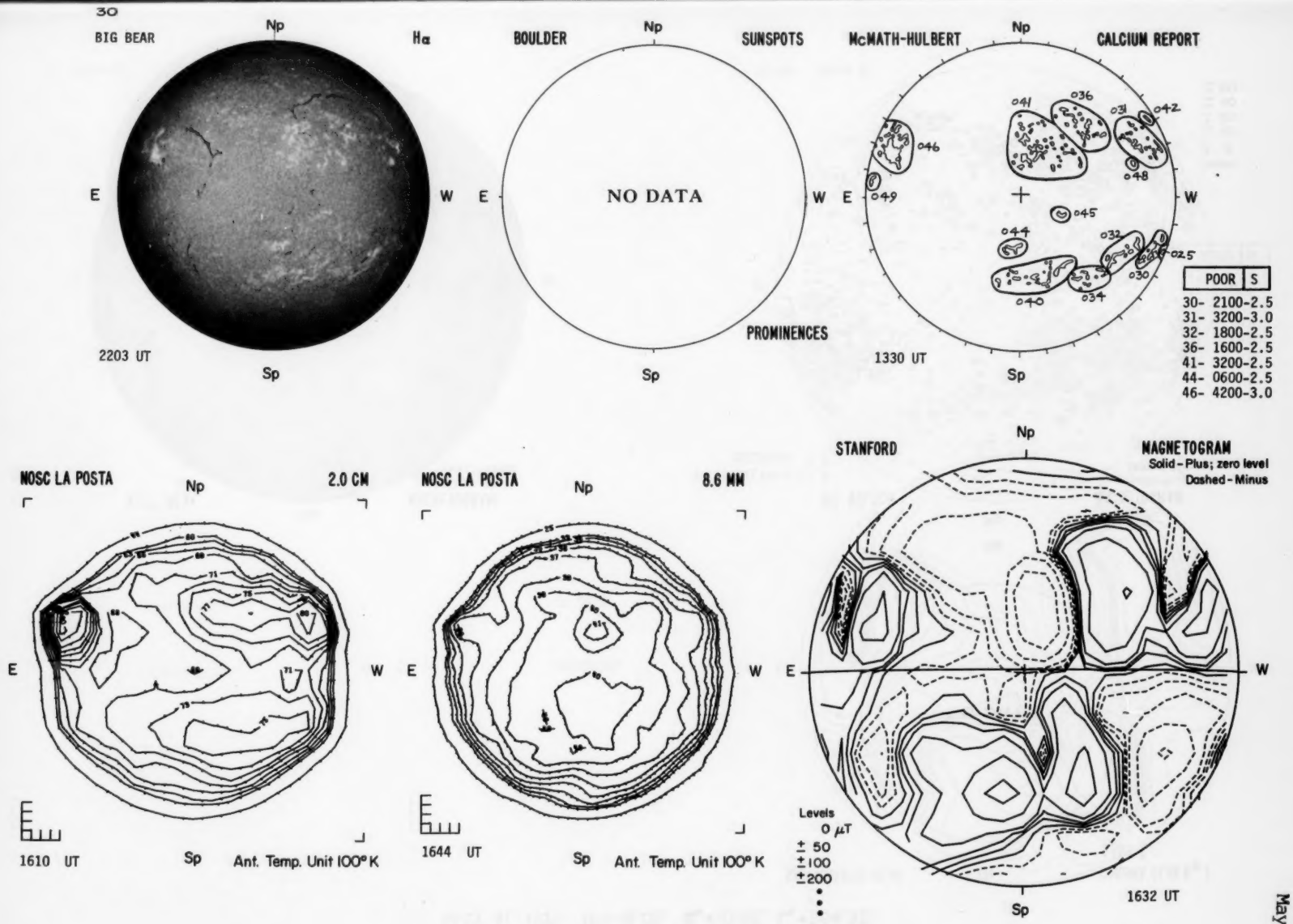
1419 UT Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5



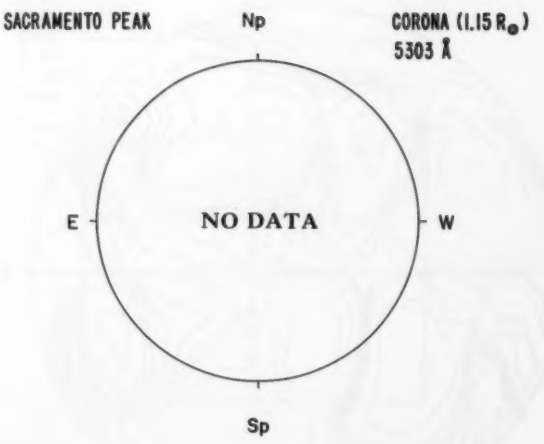
16.88 - 18.26 UT Sp

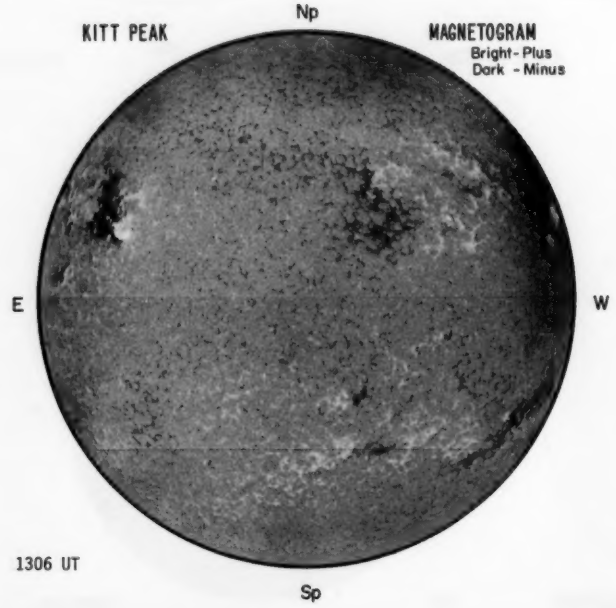
30

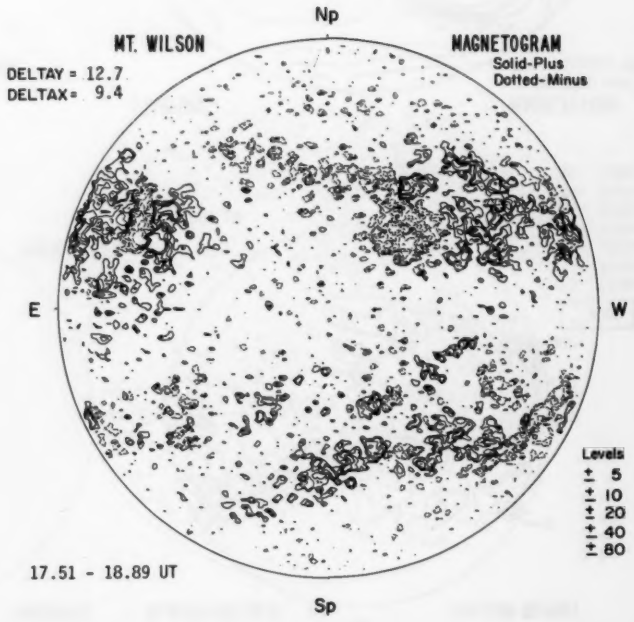

30
BIG BEAR
Np
Hα
E
W
Sp
2203 UT
BOULDER
SUNSPOTS
NO DATA
PROMINENCES
McMATH-HULBERT
CALCIUM REPORT
041
036
031
042
046
048
049
045
044
032
025
030
040
034
1330 UT
POOR
S
30- 2100-2.5
31- 3200-3.0
32- 1800-2.5
36- 1600-2.5
41- 3200-2.5
44- 0600-2.5
46- 4200-3.0
NOSC LA POSTA
2.0 CM
1610 UT
Ant. Temp. Unit 100° K
NOSC LA POSTA
8.6 MM
1644 UT
Ant. Temp. Unit 100° K
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Levels
0 μT
± 50
±100
±200
1632 UT

MAY 31, 1979 (P=-16.05, B_o=-0.82, L_o=264.32)

SACRAMENTO PEAK

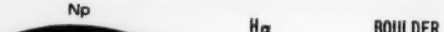






31

BIG BEAR

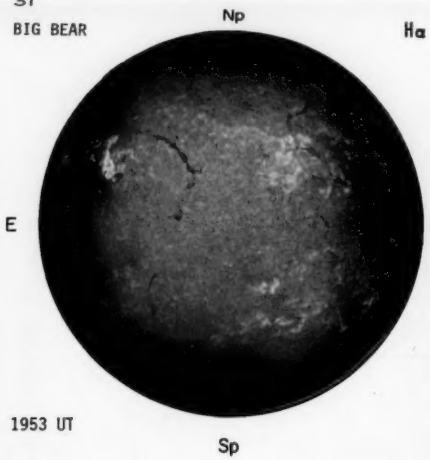


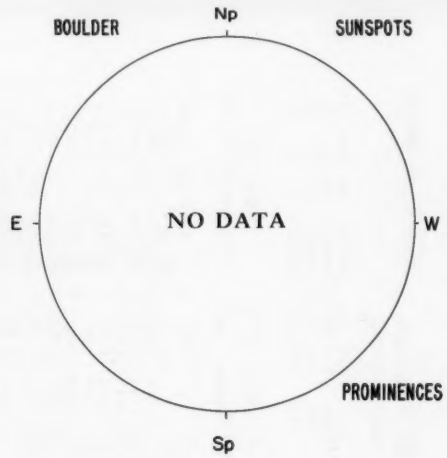
Hα

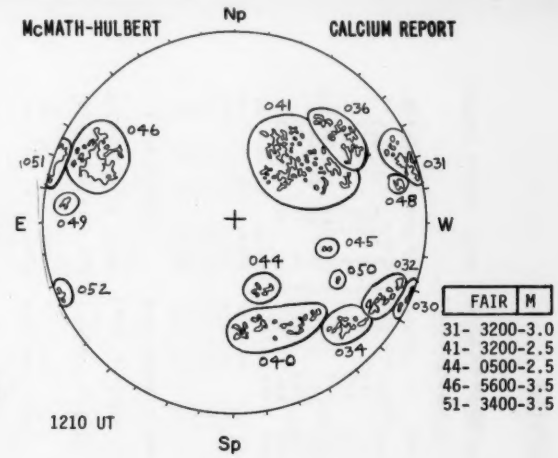
BOULDER

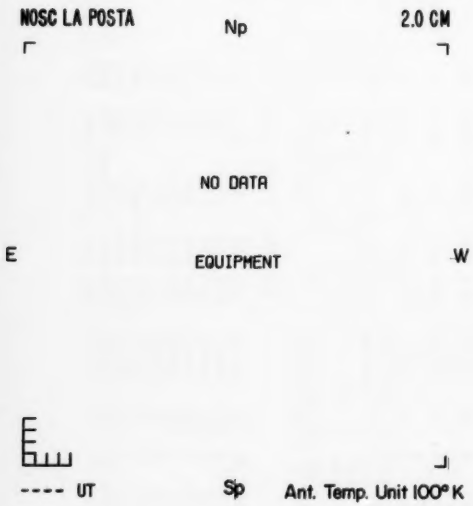
SUNSPOTS

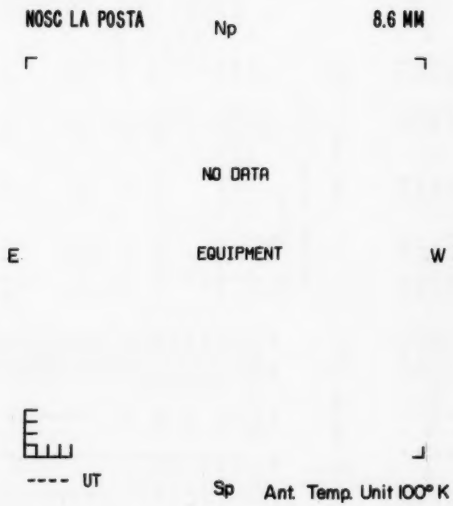
M-MATH. HILBERT

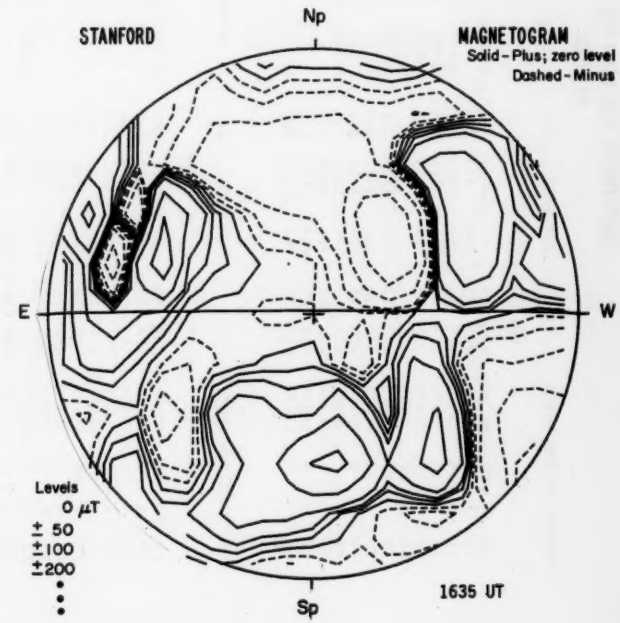

BIG BEAR
Np
Hα
E
W
1953 UT
Sp


BOULDER
Np
SUNSPOTS
E
NO DATA
W
PROMINENCES
Sp


McMATH-HULBERT
Np
CALCIUM REPORT
E
W
1210 UT
Sp
FAIR M
31- 3200-3.0
41- 3200-2.5
44- 0500-2.5
46- 5600-3.5
51- 3400-3.5


NOSC LA POSTA
Np
2.0 CM
NO DATA
E
EQUIPMENT
W
---- UT
Sp
Ant. Temp. Unit 100° K


NOSC LA POSTA
Np
8.6 MM
NO DATA
E
EQUIPMENT
W
---- UT
Sp
Ant. Temp. Unit 100° K


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1635 UT

REGIONS OF SOLAR ACTIVITY

MAY 1979

MCMATH REGION 15971 CMP DATE 1.1 REGION MOSTLY NEW

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	24	15971	N23 E85	299	300	1.5									
79	4	25	15971	N23 E71	300	1600	3.5	20571	N23 E75	297	X	3	B	110	5	DSO
79	4	26	15971	N24 E60	300	2000	3.5	20571	N24 E61	298	(B)	3	B	160	9	ESO
79	4	27	15971	N24 E45	296	2400	3.0	20571	N23 E47	298	(B)	4	B	100	8	DSO
79	4	28	15971					20571	N25 E35	297	(B)	3	B	100	13	DAO
79	4	29	15971	N25 E22	299	3200	3.5	20571	N25 E22	297	(B)	3	B	40	25	CRI
79	4	30	15971	N25 E06	300	3200	3.5	20571	N25 E08	299	(B)	3	R	30	8	CRO
79	5	1	15971	N25 W05	299	3400	3.0	20571	N25 W11	304	(B)	2	B	50	6	CSO
79	5	2	15971	N25 W18	297	3300	3.0	20571	N25 W25	304	(AP)	2				
79	5	5	15971	N26 W56	297	3300	3.0									
79	5	6	15971	N26 W70	297	2700	2.5									
79	5	7	15971	N25 W85	299	2100	2.0									

MCMATH REGION 15973 CMP DATE 2.3 RETURN OF PART OF REGION 15918 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	25	15973	S37 E85	286	400	1.0									
79	4	26	15973	S37 E74	286	700	1.0									
79	4	27	15973	S37 E60	283	500	1.5									
79	4	29	15973	S35 E36	285	700	1.5									
79	4	30	15973	S35 E22	284	700	1.5									
79	5	1	15973	S36 E11	283	730	1.5									
79	5	2	15973	S36 W02	281	700	2.0		S35 W08				M	0	1	AXX
79	5	4	15973					20583	S40 W25	278	(AF)	2				
79	5	5	15973	S36 W37	278	800	2.0									
79	5	6	15973	S36 W50	277	700	2.0									
79	5	7	15973	S35 W61	275	600	1.5									
79	5	8	15973	S36 W74	274	600	2.5	20598A	S32 W70		(B)	3				
79	5	9	15973	S34 W87	275	600	1.5									

MCMATH REGION 15974 CMP DATE 2.8 RETURN OF REGION 15939 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	25	15974	N14 E87	284	600	2.0		N15 E85				B	30	1	HSX
79	4	26	15974	N15 E77	283	3500	2.0	20575	N16 E75	284	(BP)	4	B	300	3	DSO
79	4	27	15974	N15 E60	283	5000	3.0	20575	N16 E65	280	(B)	4	B	380	5	DHO
79	4		15974					20576	N11 E72	273	(AP)	3				
79	4	28	15974					20575	N15 E52	280	(B)	5	B	530	13	FHO
79	4		15974					20576	N11 E59	273	(AP)	4	B	10	1	HRX
79	4	29	15974	N16 E41	280	5500	3.5	20575	N15 E33	286	(BY)	5	B	660	19	EKI
79	4		15974					20576	N11 E43	276	(BP)	3	B	20	3	HRX
79	4	30	15974	N16 E26	280	5000	3.5	20575	N16 E25	282	(Y)	5	R	840	33	FKO
79	4		15974						N11 E31				R	30	6	CRO
79	5	1	15974	N16 E16	278	5400	3.5	20575	N16 E11	282	(B)	5	B	910	32	FKI
79	5	2	15974	N16 E03	276	6200	3.5	20575	N16 W02	281	(B)	5	H	780	35	FKI
79	5	3	15974					20575	N15 W14	280	(BY)	5	H	760	28	FKI
79	5	4	15974					20575	N15 W26	279	(BY)	5	B	350	15	FHO
79	5		15974					20584	N11 W17	270	(B)	5	B	130	14	DAI
79	5	5	15974	N16 W34	275	6700	3.5	20575	N15 W40	280	(BY)	5	B	560	17	FHO
79	5		15974					20584	N11 W31	271	(B)	4	B	190	13	DAO
79	5	6	15974	N16 W48	275	5200	3.0		N12 W42				S	130	10	DAO
79	5		15974						N14 W52				B	610	13	FKO
79	5	7	15974	N16 W61	275	5500	3.0	20575	N15 W66	279	(B)	4	H	420	8	FAO
79	5		15974					20584	N11 W57	270	(B)	4	H	170	7	DAO
79	5	8	15974	N16 W74	274	5500	3.0	20575	N15 W75	274	AP)	3	H	400	3	DAO
79	5		15974					20584	N12 W75	274	B	3	H	260	6	DAO
79	5	9	15974	N15 W87	275	2100	2.0									

MCMATH REGION 15976 CMP DATE 3.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	26	15976	N27 E85	275	700	1.0									
79	4	27	15976	N27 E70	273	500	1.5									
79	4	29	15976	N27 E46	275	400	1.5									
79	4	30	15976	N27 E30	276	300	2.0									
79	5	1	15976	N27 E19	275	400	2.0									
79	5	2	15976	N27 E06	273	300	2.0									
79	5	5	15976	N27 W36	277	600	2.0									
79	5	6	15976	N26 W50	277	700	2.0									
79	5	7	15976	N26 W63	277	1000	3.0	20589	N26 W68	281	(AP)	3	H	40	4	BXO

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MCMATH REGION 15976 (CONT) CMP DATE 3.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	8	15976	N26 W78	278	1200	2.0									

MCMATH REGION 15978 CMP DATE 3.0 RETURN OF REGION 15924 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	27	15978	S16 E75	263	500	1.5									
79	4	29	15978	S16 E49	272	400	2.0									
79	4	30	15978	S16 E35	271	400	1.5									
79	5	1	15978	S16 E20	274	400	1.0									
79	5	2	15978	S16 E06	273	400	1.0									

MCMATH REGION 16002 CMP DATE 5.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	6	16002	S19 W41	241	300	1.5									

MCMATH REGION 15984 CMP DATE 6.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	30	15984	S30 E70	236	100	1.5									
79	5	1	15984	S29 E59	235	100	1.5									
79	5	2	15984	S30 E46	233	100	1.0									

MCMATH REGION 15982 CMP DATE 7.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	30	15982	S26 E85	221	800	2.5	20579	S26 E80	227	X	4	R	60	1	HSX
79	5	1	15982	S25 E75	219	1700	2.5	20579	S26 E67	226	(AP)	3	B	70	4	CSO
79	5	2	15982	S25 E62	217	1500	2.5	20579	S25 E57	222	(AP)	4	M	130	4	CSO
79	5	3	15982					20579	S25 E44	222	(BP)	4	M	130	5	CAO
79	5	4	15982					20579	S26 E31	222	(BP)	4	B	50	3	CSO
79	5	5	15982	S25 E23	218	1800	2.5	20579	S25 E18	222	(AP)	4	B	60	4	DSO
79	5	6	15982	S25 E09	218	1700	2.5		S24 E02				B	20	4	CSO
79	5	7	15982	S25 W05	219	1700	2.5	20579	S26 W06	219	(AP)	3				
79	5	8	15982	S26 W18	218	1700	2.0									
79	5	9	15982	S25 W31	218	1500	1.5									
79	5	10	15982	S26 W43	217	1500	1.5									
79	5	11	15982	S26 W56	217	1400	1.5									
79	5	12	15982	S25 W68	216	1100	1.5									
79	5	13	15982	S25 W81	214	600	1.0									

MCMATH REGION 15986 CMP DATE 7.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	2	15986	N21 E67	212	400	3.5	20581	N20 E63	216	(B)	2	M	20	3	BXO
79	5	3	15986					20581	N21 E54	212	(AF)	3	M	20	5	DRO
79	5	4	15986					20581	N20 E41	212	(AF)	3	B	0	1	AXX
79	5	5	15986	N20 E27	214	400	2.0	20581	N19 E27	213	(AF)	2	B	10	1	HRX
79	5	6	15986	N20 E13	214	400	2.0									
79	5	7	15986	N20 E00	214	500	2.0									
79	5	8	15986	N21 W13	213	400	2.0									
79	5	9	15986	N20 W26	214	400	2.0									
79	5	10	15986	N20 W40	214	300	1.5									

MCMATH REGION 15988 CMP DATE 7.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	5	15988	N03 E35	206	200	2.0	20585	N03 E46	207	(B)	3				
79	5	6	15988	N03 E19	208	100	1.5									

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MCMATH REGION 15988 (CONT) CMP DATE 7.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	7	15988	N03 E04	210	100	1.5									
79	5	8	15988	N03 W10	210	100	1.0									

MCMATH REGION 15989 CMP DATE 8.5

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	5	15989	N19 E42	199	300	2.0		N24 E48				B	60	3	HSO
79	5	6	15989	N19 E26	199	400	2.0		N24 E36				B	90	6	DSO
79	5	7	15989	N17 E13	201	400	1.5		N25 E20				H	70	8	CRO
79	5	8	15989	N17 W01	201	500	1.5									
79	5	9	15989	N17 W13	201	600	1.5		N25 W05				H	20	3	BXO
79	5	10	15989	N18 W27	201	500	1.5									
79	5	11	15989	N18 W40	201	500	1.0									
79	5	12	15989	N18 W52	200	500	1.0									
79	5	13	15989	N18 W67	201	300	1.0									

MCMATH REGION 15987 CMP DATE 10.1 RETURN OF REGIONS 15929 AND 15930 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	2	15987	S28 E90	189	300	1.0		S25 E86				M	140	1	HSX
79	5	3	15987					20582	S27 E78	188	(AP)	3	M	40	1	HSX
79	5	4	15987					20582	S27 E64	189	(AP)	4	B	60	1	HSX
79	5		15987					20587	S29 E80	173	(X)	2				
79	5	5	15987	S27 E60	181	3400	3.0	20582	S27 E51	189	(AP)	4	B	90	2	HSX
79	5		15987					20587	S30 E65	175	(B)	3				
79	5	6	15987	S26 E47	180	4100	3.0		S26 E35				B	60	3	CSO
79	5		15987						S30 E49				B	70	5	DAO
79	5	7	15987	S26 E33	181	4200	3.0	20582	S27 E25	188	(AP)	4				
79	5		15987					20587	S30 E41	172	(AP)	2				
79	5	8	15987	S26 E19	181	4200	3.0	20582	S27 E09	190	AP	4				
79	5	9	15987	S26 E08	180	3900	3.0	20582	S27 W01	188	(AP)	5	M	50	1	HSX
79	5	10	15987	S26 W06	180	3400	2.5	20582	S27 W13	187	(AP)	4	B	100	3	CSO
79	5	11	15987	S26 W19	180	3200	2.5	20582	B26 W27	188	(AP)	4				
79	5		15987					20598B	S30 W25		AP	2				
79	5	12	15987	S27 W31	179	2800	2.5	20582	S26 W39	186	(AP)	4				
79	5	13	15987	S27 W44	178	2500	2.0	20582	S26 W52	186	(AP)	3				
79	5	14	15987	S27 W55	176	1800	2.0	20582	S26 W65	186	(AP)	3				
79	5	15	15987	S27 W67	176	2000	2.0	20582	S26 W85	188	AP	3				
79	5	16	15987	S27 W80	176	1300	1.5									

MCMATH REGION 15990 CMP DATE 10.2 RETURN OF REGION 15933 ROTATION 5

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	4	15990					20586	N22 E70	183	(AP)	2	B	0	1	AXX
79	5	5	15990	N23 E63	178	3000	3.5	20586	N21 E60	180	(B)	3	B	150	8	DAO
79	5		15990					20588	N25 E51	189	(B)	4				
79	5	6	15990	N22 E49	178	3300	3.5		N20 E46				B	260	16	DAI
79	5	7	15990	N23 E35	179	5100	4.0	20586	N21 E34	179	(B)	4	M	250	32	EAI
79	5		15990					20588	N24 E23	190	(B)	2				
79	5	8	15990	N23 E20	180	5000	3.0	20586	N22 E17	182	B	5	M	260	28	EAI
79	5		15990					20588	N24 E08	191	B	2	M	90	5	DRO
79	5	9	15990	N23 E09	179	5000	3.0	20586	N22 E08	179	(BY)	5	M	270	23	FKI
79	5		15990					20588	N24 W01	188	(AP)	2				
79	5	10	15990	N23 W04	178	5000	3.0	20586	N22 W05	179	(BP)	5	B	300	13	ESI
79	5		15990					20588	N25 W12	186	(AP)	2	B	10	3	BXO
79	5	11	15990	N22 W18	179	5000	3.0	20586	N22 W18	179	(B)	5	B	160	18	ESI
79	5		15990						N21 W16				B	160	18	ESI
79	5		15990					20588	N24 W27	188	(AP)	3				
79	5	12	15990	N23 W31	179	5000	3.0	20586	N22 W31	178	(B)	5				
79	5		15990					20588	N24 W41	188	(AP)	2				
79	5	13	15990	N23 W45	179	5000	3.0	20586	N22 W45	179	(BP)	4				
79	5	14	15990	N23 W59	179	4500	2.5	20586	N21 W60	181	(AP)	4				
79	5	15	15990	N23 W70	179	3800	2.5	20586	N20 W80	183	AP	4				
79	5	16	15990	N23 W83	179	2500	2.0									

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MCMATH REGION 15992 CMP DATE 11.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	5	15992	N09 E83	156	900	1.5
79	5	6	15992	N08 E69	158	1400	2.5
79	5	7	15992	N08 E56	158	1800	2.5
79	5	8	15992	N08 E43	157	2100	2.5
79	5	9	15992	N08 E29	159	2200	2.5
79	5	10	15992	N07 E14	160	2500	2.5
79	5	11	15992	N07 W01	162	3000	3.0
79	5	12	15992	N08 W15	163	3000	3.0
79	5	13	15992	N08 W31	165	3500	3.0
79	5	14	15992	N08 W44	165	3300	3.0
79	5	15	15992	N08 W57	166	3300	3.0
79	5	16	15992	N08 W70	166	3300	3.0
79	5	17	15992	N08 W85	166	800	2.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N07 E55				M	20	4	BXO
20595	N08 E34	165	B	3	M	70	9	DRO
20595	N08 E24	163	(B)	4	M	80	15	DAO
20595	N08 E10	164	(B)	4	B	150	15	DAI
20595	N08 W03	164	(B)	5	B	440	29	DKI
20595	N08 W17	164	(D)	5	B	540	34	DKI
20595	N08 W30	164	(D)	5				
20595	N08 W44	165	(B)	5				
20595	N07 W62	165	(BP)	4				
20595	N08 W72	167	(BP)	4				

MCMATH REGION 15994 CMP DATE 11.5 RETURN OF REGION 15936 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	5	15994	N18 E80	161	500	1.0
79	5	6	15994	N17 E70	157	700	1.5
79	5	7	15994	N18 E56	158	800	2.0
79	5	8	15994	N18 E43	157	900	2.0
79	5	9	15994	N19 E30	158	900	2.0
79	5	10	15994	N19 E15	159	1100	2.0
79	5	11	15994	N20 E01	160	1000	1.5
79	5	12	15994	N20 W12	160	800	1.5
79	5	13	15994	N20 W26	160	700	1.0
79	5	14	15994	N21 W38	159	600	1.0
79	5	15	15994	N21 W50	159	600	1.5
79	5	16	15994	N21 W64	160	500	1.0
79	5	17	15994	N20 W80	161	300	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N17 E66				B	10	1	HRX
20590	N18 E54	159	(AP)	2	M	20	1	HRX
20590	N19 E37	162	AP	2	M	20	1	HRX
20590	N19 E23	159	(AP)	2	M	20	1	HRX
20590	N19 E15	159	(AP)	2	B	0	1	AXX

MCMATH REGION 15991 CMP DATE 11.9 RETURN OF REGION 15953 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	5	15991	N32 E80	161	1300	1.0
79	5	6	15991	N33 E66	161	1200	1.0
79	5	7	15991	N35 E55	159	1200	1.0
79	5	8	15991	N32 E41	159	1400	1.5
79	5	9	15991	N32 E30	158	1500	1.5
79	5	10	15991	N32 E18	156	1400	2.0
79	5	11	15991	N32 E05	156	1000	1.5
79	5	12	15991	N32 W10	158	1100	1.5
79	5	13	15991	N32 W25	159	1000	1.5
79	5	14	15991	N32 W38	159	700	1.0
79	5	15	15991	N34 W49	158	600	1.0
79	5	16	15991	N34 W60	156	500	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N28 E35				M	20	2	BXO

MCMATH REGION 15996 CMP DATE 12.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	6	15996	S21 E78	149	200	1.5
79	5	7	15996	S21 E66	148	400	1.5
79	5	8	15996	S21 E53	147	500	1.5
79	5	9	15996	S21 E39	149	600	1.5
79	5	10	15996	S21 E24	150	500	2.0
79	5	11	15996	S21 E10	151	500	2.5
79	5	12	15996	S21 W07	155	400	2.5
79	5	13	15996	S21 W20	154	600	2.5
79	5	14	15996	S21 W33	154	600	2.5
79	5	15	15996	S22 W45	154	700	2.5
79	5	16	15996	S21 W59	155	900	3.0
79	5	17	15996	S20 W75	156	1100	3.5
79	5	18	15996	S20 W87	156	800	2.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S22 E71				B	10	1	HSX
20593	S21 E60	153	(AP)	3				
20593	S21 E44	155	AP	3				
20593	S21 E34	153	(AP)	3	M	10	1	HRX
20593	S20 E20	154	(AP)	3	B	0	1	AXX
20593	S21 E07	154	(AP)	2				
20593	S22 W07	154	(B)	2	B	60	16	DSI
20593	S21 W20	154	(BY)	3				
20593	S21 W34	155	(BP)	3	P	20	3	CSO
20593	S22 W53	156	(B)	2				
20593	S22 W64	159	(B)	3				
20593	S22 W75	156	(B)	3				

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MCMATH REGION 15995 — CMP DATE 12.6 — RETURN OF REGION 15937 — ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	6	15995	N04 E86	141	800	1.5		N04 E78				B	160	1	HRX
79	5	7	15995	N04 E70	144	1400	1.5	20591	N03 E66	147	(AP)	4	M	430	6	CHO
79	5	8	15995	N04 E56	144	1900	2.5	20591	N03 E50	149	BP	5	M	390	7	DHO
79	5	9	15995	N04 E44	144	2600	2.5	20591	N04 E40	147	(BP)	5	M	210	5	CHO
79	5	10	15995	N04 E28	146	2200	2.5	20591	N04 E26	148	(BP)	6	B	330	4	CSO
79	5	11	15995	N04 E14	147	2400	2.0	20591	N03 E13	148	(BP)	5	B	260	4	HHX
79	5	12	15995	N04 E01	147	2100	1.5	20591	N03 W01	148	(AF)	5	B	280	3	HHX
79	5	13	15995	N05 W13	147	2000	2.0	20591	N03 W14	148	(AF)	5				
79	5	14	15995	N05 W27	148	1800	2.5	20591	N04 W27	148	(BP)	5				
79	5	15	15995	N05 W40	149	1500	2.5	20591	N03 W45	148	(AP)	5				
79	5	16	15995	N05 W53	149	1500	2.5	20591	N03 W54	149	(AP)	5				
79	5	17	15995	N05 W67	148	1300	2.5	20591	N04 W66	147	(AP)	4				
79	5	18	15995	N05 W80	149	1000	1.5	20591	N04 W83	151	AP	4				

MCMATH REGION 15997 — CMP DATE 13.1

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	6	15997	S32 E85	142	100	1.0									
79	5	7	15997	S32 E72	142	400	2.5	20594	S32 E70	143	(AP)	2	M	30	3	BXO
79	5	8	15997	S33 E60	140	700	2.5									
79	5	9	15997	S33 E47	141	700	3.0		S32 E41				M	10	1	AXX
79	5	10	15997	S32 E35	139	400	2.5									
79	5	11	15997	S32 E20	141	500	2.0									
79	5	12	15997	S32 E08	140	400	1.5									
79	5	13	15997	S32 W06	140	500	2.0									
79	5	14	15997	S32 W18	139	400	1.5									
79	5	15	15997	S33 W31	139	300	1.5									
79	5	16	15997	S33 W43	139	300	1.5									
79	5	17	15997	S33 W56	137	300	1.5									
79	5	18	15997	S34 W68	137	300	1.5									

MCMATH REGION 15999 — CMP DATE 13.6 — RETURN OF REGION 15943 — ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	7	15999	N17 E86	128	1800	1.5									
79	5	8	15999	N17 E70	130	1600	1.5									
79	5	9	15999	N17 E57	131	2000	1.5									
79	5	10	15999	N17 E42	132	1800	2.0									
79	5	11	15999	N17 E29	132	1600	2.0									
79	5	12	15999	N17 E15	133	1600	1.5									
79	5	13	15999	N17 E01	133	1500	3.0									
79	5	14	15999	N17 W13	134	1500	3.0									
79	5	15	15999	N16 W25	134	2000	3.0									
79	5	16	15999	N16 W38	134	2800	3.5									
79	5	17	15999	N17 W55	136	3200	3.0									
79	5	18	15999	N17 W67	136	3600	3.0									
79	5	19	15999	N17 W80	136	3300	3.0									

MCMATH REGION 16001 — CMP DATE 13.7 — RETURN OF REGION 15938 — ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	7	16001	S16 E85	129	1500	2.5	20592	S15 E80	133	B	3				
79	5	8	16001	S17 E76	124	2300	3.5	20592	S15 E63	136	B	4				
79	5	9	16001	S16 E60	128	2400	3.0	20592	S15 E52	135	(AP)	3	M	90	1	HSX
79	5	10	16001	S16 E44	130	2100	2.5	20592	S15 E37	137	(AP)	3	B	50	5	CAO
79	5	11	16001	S16 E30	131	1700	2.5	20592	S15 E25	136	(BP)	3	B	10	3	BXO
79	5	12	16001	S16 E17	131	1400	1.5	20592	S15 E13	134	(AP)	2	B	20	3	BXO
79	5	13	16001	S16 E02	132	1400	2.5	20592	S15 W03	137	(BY)	3				
79	5	14	16001	S15 W12	133	1200	2.5	20592	S15 W17	138	(B)	3				
79	5	15	16001	S15 W25	134	1400	2.5	20592	S16 W33	136	(B)	2				
79	5	16	16001	S16 W38	134	1700	2.5	20592	S16 W43	138	(BP)	3				
79	5	17	16001	S15 W51	132	1400	2.5									
79	5	18	16001	S15 W64	133	1500	2.5									
79	5	19	16001	S15 W77	133	1000	2.0									

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MCMATH REGION 16000 CMP DATE 14.0 RETURN OF PART OF REGION 15948 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	7	16000	N05 E89	125	200	1.0									
79	5	8	16000	N07 E74	126	800	1.5									
79	5	9	16000	N07 E62	126	500	2.0									
79	5	10	16000	N07 E47	127	600	2.5									
79	5	11	16000	N07 E35	126	600	2.0									
79	5	12	16000	N07 E22	126	600	1.5									
79	5	13	16000	N07 E06	126	600	1.5									
79	5	14	16000	N08 W06	127	600	1.5									
79	5	15	16000	N08 W17	126	600	1.5									
79	5	16	16000	N09 W30	126	500	1.5									
79	5	17	16000	N10 W43	124	300	1.0									
79	5	18	16000	N10 W55	124	200	1.0									
79	5	19	16000	N12 W67	123	300	1.0									

MCMATH REGION 16004 CMP DATE 14.5 RETURN OF REGION 15949 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	8	16004	S26 E80	120	400	1.0									
79	5	9	16004	S27 E67	121	300	1.0									
79	5	10	16004	S27 E53	121	400	1.5									
79	5	11	16004	S27 E39	122	300	1.0									
79	5	12	16004	S27 E27	121	300	1.0									
79	5	13	16004	S27 E12	122	200	1.0									

MCMATH REGION 16011 CMP DATE 14.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	11	16011	S38 E40	121	100	1.0									
79	5	12	16011	S38 E28	120	100	1.5									
79	5	13	16011	S38 E14	120	200	1.5									
79	5	14	16011	S38 E01	120	100	1.0									

MCMATH REGION 16003 CMP DATE 14.7 RETURN OF REGION 15942 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	8	16003	N30 E81	119	1600	2.0	20596	N28 E70	129	AP	4				
79	5	9	16003	N32 E70	118	3100	4.0	20596	N28 E60	127	(AP)	4	M	10	1	AXX
79	5	10	16003	N29 E57	117	3200	2.5	20596	N28 E47	127	(AP)	4	B	130	5	HAX
79	5	11	16003	N30 E43	118	2700	2.0	20596	N28 E35	126	(AP)	4				
79	5	12	16003	N30 E31	117	2800	2.0	20596	N28 E22	125	(AP)	4				
79	5	13	16003	N31 E15	119	3000	2.5	20596	N28 E08	126	(BP)	4				
79	5	14	16003	N31 E02	119	2700	2.5	20596	N29 W03	124	(AP)	4	P	100	4	CSO
79	5	15	16003	N31 W10	119	2100	2.5	20596	N28 W22	125	(AP)	4				
79	5	16	16003	N31 W22	118	1800	2.5	20596	N28 W29	124	(AP)	5				
79	5	17	16003	N31 W40	121	2100	2.5	20596	N28 W43	124	(AP)	4				
79	5	18	16003	N30 W51	120	2100	2.0	20596	N28 W57	125	(AP)	4				
79	5	19	16003	N30 W64	120	1700	2.0	20596	N28 W69	124	(AP)	4				
79	5	20	16003	N30 W77	119	1300	2.0	20596	N28 W80	122	AP	4				

MCMATH REGION 16005 CMP DATE 15.0 RETURN OF REGION 15950 ROTATION 5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	8	16005	S15 E88	112	800	2.0	20597	S16 E85	114	AP	3				
79	5	9	16005	S14 E74	114	1300	2.5	20597	S16 E69	118	(AP)	3				
79	5	10	16005	S14 E60	114	1200	3.0	20597	S15 E56	118	(AP)	4	B	90	1	HSX
79	5	11	16005	S15 E46	115	1200	2.5	20597	S15 E43	118	(AP)	4	B	50	1	HSX
79	5	12	16005	S15 E33	115	1000	2.5	20597	S16 E29	118	(AP)	4	B	50	1	HSX
79	5	13	16005	S15 E17	117	1200	2.0	20597	S15 E16	118	(AP)	4	B	40	1	HSX
79	5	14	16005	S15 E06	115	800	2.0	20597	S15 E03	118	(AP)	4				
79	5	15	16005	S15 W07	116	800	2.0	20597	S16 W15	118	(AP)	4				
79	5	16	16005	S15 W20	116	800	2.0	20597	S16 W24	119	(AP)	4				
79	5	17	16005	S15 W34	115	600	2.5	20597	S16 W36	117	(AP)	3				
79	5	18	16005	S15 W46	115	800	2.5	20597	S16 W50	118	(AP)	2				
79	5	19	16005	S15 W59	115	300	2.5	20597	S16 W64	119	(AP)	2				
79	5	20	16005	S15 W72	114	900	2.5									

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MCMATH REGION 16006 CMP DATE 15.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	9	16006	S19 E85	103	600	1.0								
79	5	10	16006	S20 E70	104	400	2.5								
79	5	11	16006	S21 E55	106	200	2.5								
79	5	12	16006	S21 E43	105	200	1.0								
79	5	13	16006	S21 E28	106	200	1.5								
79	5	14	16006	S20 E14	107	100	1.0								

MCMATH REGION 16007 CMP DATE 15.6 RETURN OF REGION 15966 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	10	16007	N22 E73	101	1000	2.0								
79	5	11	16007	N22 E59	102	1000	2.0								
79	5	12	16007	N21 E44	104	900	2.0								
79	5	13	16007	N21 E29	105	900	1.5								
79	5	14	16007	N22 E15	106	900	1.5								
79	5	15	16007	N22 E04	105	1000	2.0								
79	5	16	16007	N23 W09	105	1000	2.0								
79	5	17	16007	N24 W24	105	900	2.0								
79	5	18	16007	N24 W36	105	700	2.0								
79	5	19	16007	N24 W51	106	700	2.0								
79	5	20	16007	N25 W63	105	700	2.0								
79	5	21	16007	N25 W76	105	500	1.5								

MCMATH REGION 16014 CMP DATE 15.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	11	16014	N15 E58	103	200	2.0								
79	5	12	16014	N16 E45	103	600	2.0								
79	5	13	16014	N16 E30	104	500	3.0								
79	5	14	16014	N16 E17	104	900	3.0								
79	5	15	16014	N16 E04	105	1200	3.0								
79	5	16	16014	N16 W10	106	1400	3.0								
79	5	17	16014	N17 W25	106	1500	3.0								
79	5	18	16014	N17 W37	106	1800	3.0								
79	5	19	16014	N17 W50	106	2400	3.5								
79	5	20	16014	N17 W63	105	2300	3.5								
79	5	21	16014	N17 W75	104	2700	3.0								
79	5	22	16014	N17 W88	104	500	1.5								

MCMATH REGION 16017 CMP DATE 15.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	13	16017	S29 E30	104	100	1.0								
79	5	14	16017	S29 E17	104	600	3.0	20608A	S30 E17		(B)	3			
79	5	15	16017	S30 E05	104	1500	3.0	20608A	S30 W01		(B)	4			
79	5	16	16017	S30 W07	103	1400	2.5	20608A	S31 W09		(B)	4			
79	5	17	16017	S29 W21	102	1200	2.5	20608A	S30 W22		(B)	4			
79	5	18	16017	S29 W33	102	1200	2.5	20608A	S30 W35		(B)	4			
79	5	19	16017	S29 W45	101	1200	2.5	20608A	S30 W47		(BF)	3			
79	5	20	16017	S30 W59	100	1200	2.5	20608A	S28 W63		(AP)	3			
79	5	21	16017	S30 W71	100	1200	2.5	20608A	S29 W79		AP	3			
79	5	22	16017	S30 W84	100	900	1.0								

MCMATH REGION 16018 CMP DATE 16.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	15	16018	N37 E08	101	1400	2.5								
79	5	16	16018	N37 W05	101	1500	2.5								
79	5	17	16018	N37 W19	100	1500	2.5								
79	5	18	16018	N37 W31	100	1400	2.5								
79	5	19	16018	N37 W42	98	1400	2.0								
79	5	20	16018	N38 W54	96	1400	2.5								
79	5	21	16018	N39 W66	95	1200	3.0	20620	N39 W69	93	(AF)	2	B	30	1 HSX
79	5	22	16018	N39 W79	95	900	2.0								

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MCMATH REGION 16008 CMP DATE 16.3

			CALCIUM	PLAGE	DATA		SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	10	16008	S12 E79	95	500	1.5									
79	5	11	16008	S12 E67	94	600	1.5									
79	5	12	16008	S12 E52	96	400	1.5									
79	5	13	16008	S12 E37	97	400	1.5									
79	5	14	16008	S12 E23	98	400	1.5									
79	5	15	16008	S12 E11	98	400	1.5									
79	5	16	16008	S12 W01	97	400	1.5									
79	5	17	16008	S13 W15	96	300	1.5									
79	5	18	16008	S13 W27	96	300	1.5									
79	5	19	16008	S13 W40	96	300	1.5									
79	5	20	16008	S13 W53	95	400	2.5									
79	5	21	16008	S13 W66	95	500	2.5									
79	5	22	16008	S13 W79	95	400	2.5									

MCMATH REGION 16010 CMP DATE 17.4

			CALCIUM	PLAGE	DATA			SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	11	16010	N13 E79	82	1200	3.5									
79	5	12	16010	N13 E66	82	1200	3.5									
79	5	13	16010	N13 E49	85	1400	3.5									
79	5	14	16010	N13 E36	85	1100	3.5									
79	5	15	16010	N13 E24	85	1400	3.5									
79	5	16	16010	N13 E11	85	1400	3.5									
79	5	17	16010	N13 W04	85	1400	2.5									
79	5	18	16010	N14 W16	85	1400	2.5									
79	5	19	16010	N14 W29	85	1500	2.5									
79	5	20	16010	N14 W42	84	1700	2.5									
79	5	21	16010	N14 W56	95	1500	2.5									
79	5	22	16010	N14 W70	86	1100	2.0									
79	5	23	16010	N14 W83	85	900	1.0									

MCMATH REGION 16009 CMP DATE 17.5

			CALCIUM	PLAGE	DATA			SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	11	16009	S15 E81	80	900	2.5									
79	5	12	16009	S16 E68	80	800	3.0	20602	S15 E64	83	(AP)	2	B	10	1	AXX
79	5	13	16009	S16 E53	81	600	3.0	20602	S15 E50	84	(AP)	3	B	10	1	AXX
79	5	14	16009	S16 E40	81	600	2.5									
79	5	15	16009	S15 E27	82	400	2.0									
79	5	16	16009	S15 E14	82	300	2.0									
79	5	17	16009	S15 W01	82	300	1.5									
79	5	18	16009	S15 W15	84	300	2.0									
79	5	19	16009	S15 W28	84	400	2.0									
79	5	20	16009	S15 W41	83	400	2.0									
79	5	21	16009	S15 W54	83	300	1.0									
79	5	22	16009	S14 W67	83	300	1.0									

MCMATH REGION 16033 CMP DATE 17.8

			CALCIUM	PLAGE	DATA			SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	21	16033	N20 W49	78	100	2.0									
79	5	22	16033	N21 W62	78	500	2.5									
79	5	23	16033	N21 W75	77	300	1.0									

MCMATH REGION 16035 CMP DATE 18.0

			CALCIUM	PLAGE	DATA			SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	22	16035	N05 W60	76	100	1.5									

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MCMATH REGION 16013 CMP DATE 18.6 RETURN OF REGION 15951 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	12	16013	S31 E75	73	500	1.0								
79	5	13	16013	S30 E62	72	400	1.0								
79	5	14	16013	S30 E52	69	300	1.0								
79	5	15	16013	S30 E40	69	200	2.0								
79	5	16	16013	S30 E27	69	100	1.0								
79	5	17	16013	S30 E13	68	200	1.0								
79	5	18	16013	S30 E00	69	200	1.0								
79	5	19	16013	S30 W12	68	200	1.0								
79	5	20	16013	S30 W25	67	100	1.0								
79	5	21	16013	S30 W37	66	100	1.0								

MCMATH REGION 16021 CMP DATE 18.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	22	16021	S30 W50	66	600	3.0	20608B	S29 W51		(B)	2			
79	5	23	16021	S29 W63	65	800	2.5								

MCMATH REGION 16012 CMP DATE 19.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	12	16012	N23 E90	58	400	1.0								
79	5	13	16012	N24 E80	54	1200	3.0	20607	N25 E70	64	(AP)	2			
79	5	14	16012	N25 E65	56	1600	3.0	20607	N25 E62	59	(B)	3	P	120	4 CAO
79	5	15	16012	N25 E53	56	1900	3.0	20607	N24 E44	59	(BF)	4			
79	5	16	16012	N25 E40	56	2400	3.0	20607	N24 E35	60	(BF)	4			
79	5	17	16012	N25 E25	56	2200	3.0	20607	N24 E23	58	(BY)	4			
79	5	18	16012	N25 E14	55	2500	3.0	20607	N24 E05	63	(B)	4			
79	5	19	16012	N25 E00	56	2500	3.0	20607	N24 W09	64	(BY)	4			
79	5	20	16012	N25 W13	55	2500	3.5	20607	N23 W23	65	(BF)	4			
79	5	21	16012	N25 W26	55	2500	3.0	20607	N25 W35	64	(AP)	4			
79	5		16012					20621	N24 W24	53	(BF)	4	B	70	6 DSO
79	5	22	16012	N25 W39	55	3300	3.0	20607	N24 W48	63	(AP)	3			
79	5		16012					20621	N24 W38	53	(B)	2			
79	5	23	16012	N26 W52	54	3000	3.0								
79	5	24	16012					20607	N24 W75	65	(AP)	2			

MCMATH REGION 16015 CMP DATE 19.9 RETURN OF PART OF REGION 15955 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	13	16015	N15 E90	44	300	1.5								
79	5	14	16015	N16 E77	44	400	3.0								
79	5	15	16015	N15 E60	49	600	3.0								
79	5	16	16015	N14 E47	49	600	2.5								
79	5	17	16015	N15 E31	50	500	2.0								
79	5	18	16015	N15 E18	51	300	1.5								
79	5	19	16015	N15 E05	51	500	1.5								
79	5	20	16015	N15 W08	50	400	1.5								
79	5	21	16015	N14 W21	50	500	1.5								
79	5	22	16015	N14 W34	50	500	1.5								
79	5	23	16015	N14 W48	50	400	1.0								

MCMATH REGION 16016 CMP DATE 20.3 RETURN OF REGION 15956 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	13	16016	S20 E90	44	300	1.5								
79	5	14	16016	S19 E72	49	200	2.5								
79	5	15	16016	S20 E60	49	400	2.0								
79	5	16	16016	S20 E47	49	400	2.0								
79	5	17	16016	S20 E31	50	300	1.5								
79	5	18	16016	S20 E19	50	200	2.0								
79	5	19	16016	S20 E06	50	200	1.5								
79	5	20	16016	S20 W07	49	200	1.5								
79	5	21	16016	S20 W20	49	300	1.5								
79	5	22	16016	S20 W32	48	200	1.0								
79	5	23	16016	S20 W45	47	200	1.0								

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MCMATH REGION 16019 CMP DATE 20.1 RETURN OF PART OF REGION 15955 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	14	16019	N05 E77	44	500	1.0									
79	5	15	16019	N05 E63	46	400	1.0									
79	5	16	16019	N04 E50	46	300	1.0									
79	5	17	16019	N05 E33	46	200	1.0									
79	5	18	16019	N05 E21	46	400	1.5									
79	5	19	16019	N05 E08	48	400	1.5									
79	5	20	16019	N06 W06	48	400	1.5									
79	5	21	16019	N07 W19	48	300	1.0									
79	5	22	16019	N07 W32	48	300	1.0									
79	5	23	16019	N07 W45	47	400	1.0									

MCMATH REGION 16027 CMP DATE 21.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	18	16027	S08 E38	31	100	1.5									

MCMATH REGION 16023 CMP DATE 21.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	15	16023	S16 E79	30	800	2.5									
79	5	16	16023	S16 E72	24	900	1.0	20611	S11 E73	22	(AP)	2				
79	5	17	16023	S15 E58	23	800	1.5	20611	S11 E58	23	(B)	3				
79	5	18	16023	S15 E45	24	1000	2.5	20611	S13 E40	28	(AP)	2				
79	5	19	16023	S15 E30	26	1000	2.0	20611	S13 E28	27	(B)	2	B	10	3	BXO
79	5	20	16023	S15 E14	28	1200	2.0	20611	S14 E11	31	(AP)	2	H	20	2	HSX
79	5	21	16023	S15 E01	28	900	2.5	20611	S13 W04	33	(AP)	2	B	0	2	AXX
79	5	22	16023	S15 W11	27	900	2.0		S17 W12				B	10	3	BXO
79	5	23	16023	S15 W25	27	900	1.5									

MCMATH REGION 16020 CMP DATE 21.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	15	16020	N16 E89	20	400	1.0									
79	5	16	16020	N16 E76	20	400	2.5									
79	5	17	16020	N15 E60	21	400	2.5									
79	5	18	16020	N15 E45	24	700	2.0									
79	5	19	16020	N15 E31	25	600	1.5									
79	5	20	16020	N15 E17	25	500	1.5									
79	5	21	16020	N15 E03	26	300	1.5									
79	5	22	16020	N15 W10	26	300	1.5									
79	5	23	16020	N14 W24	26	300	1.5									
79	5	27	16020	N14 W85	36	300	1.0									

MCMATH REGION 16024 CMP DATE 22.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	17	16024	N26 E66	15	100	2.0									
79	5	18	16024	N26 E53	16	100	1.0									
79	5	19	16024	N26 E39	17	300	1.5									
79	5	20	16024	N26 E26	16	200	2.0	20618	N26 E24	18	(AF)	2	H	10	2	CSO
79	5	21	16024	N26 E11	18	500	3.0	20618	N26 E08	21	(B)	2				
79	5	22	16024	N26 W02	18	700	2.5	20618	N26 W05	20	(B)	3				
79	5	23	16024	N26 W16	18	700	3.0		N25 W20				P	60	12	DRO
79	5	24	16024					20618	N25 W32	22	(B)	2	B	30	9	BXI
79	5	27	16024	N25 W70	21	600	1.5									

MCMATH REGION 16028 CMP DATE 23.6 RETURN OF REGION 15963 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	17	16028	N22 E80	1	300	1.0									
79	5	18	16028	N22 E65	4	400	1.0									
79	5	19	16028	N22 E52	4	400	1.0									

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MCMATH REGION 16028 (CONT) CMP DATE 23.5 RETURN OF REGION 15963 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	20	16028	N22 E39	3	400	1.0
79	5	21	16028	N23 E26	3	400	1.0
79	5	22	16028	N23 E13	3	400	1.0
79	5	23	16028	N23 E00	2	400	1.5
79	5	27	16028	N23 W53	4	600	1.5
79	5	28	16028	N24 W70	6	500	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS

MCMATH REGION 16029 CMP DATE 23.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	17	16029	N14 E90	352	300	1.0
79	5	18	16029	N13 E67	2	300	1.0
79	5	19	16029	N13 E54	2	200	1.5
79	5	20	16029	N13 E40	2	400	1.0
79	5	21	16029	N14 E27	2	500	1.0
79	5	22	16029	N14 E14	2	400	1.0
79	5	23	16029	N14 E00	2	300	1.0
79	5	27	16029	N14 W58	9	400	2.5
79	5	28	16029	N14 W72	8	400	2.5
79	5	29	16029	N14 W85	10	300	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS

MCMATH REGION 16025 CMP DATE 23.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	17	16025	S20 E89	353	200	1.5
79	5	18	16025	S20 E79	351	500	2.0
79	5	19	16025	S20 E60	357	400	2.0
79	5	20	16025	S20 E46	357	600	3.0
79	5		16025				
79	5	21	16025	S21 E31	359	900	3.0
79	5		16025				
79	5	22	16025	S22 E18	359	1000	2.5
79	5		16025				
79	5	23	16025	S22 E05	358	1000	2.5
79	5	24	16025				
79	5		16025				
79	5	25	16025				
79	5		16025				
79	5	26	16025				
79	5		16025				
79	5	27	16025	S20 W45	356	900	2.5
79	5		16025				
79	5	28	16025	S21 W60	356	600	3.0
79	5		16025				
79	5	29	16025	S22 W72	357	600	2.5
79	5	30	16025	S21 W87	358	300	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20614	S19 E81	348	(X)	2				
20614	S18 E67	349	(AP)	4				
20614	S18 E52	351	(AP)	4				
20619	S20 E43	0	(AP)	3				
20614	S18 E38	352	(AF)	4				
20619	S21 E30	0	(B)	3				
20614	S20 E28	348	(B)	3				
20619	S22 E17	359	(BF)	4	B	100	9	DSO
	S22 E01				P	100	16	DAI
20614	S20 E04	346	(BP)	4				
20619	S22 W10	0	(B)	3	B	50	16	DSO
20614	S18 W14	351	(AF)	3				
20619	S22 W22	359	(B)	3	B	50	5	DSO
20614	S18 W26	348	(AP)	3				
20619	S22 W35	357	(B)	3				
20614	S18 W39	348	(AP)	3	B	50	6	CSO
20619	S22 W50	359	(B)	4	B	60	12	ESO
20614	S18 W53	349	(AF)	3	B	20	2	HSX
20619	S22 W64	0	(B)	3	B	20	3	BXO
20614	S18 W67	351	(AP)	3				

MCMATH REGION 16026 CMP DATE 24.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	17	16026	S27 E88	354	400	1.5
79	5	18	16026	S28 E75	355	700	2.0
79	5	19	16026	S28 E63	354	700	2.5
79	5	20	16026	S26 E50	353	900	2.0
79	5	21	16026	S28 E36	354	900	2.5
79	5	22	16026	S29 E24	353	700	2.5
79	5	23	16026	S29 E11	352	500	2.5
79	5	27	16026	S29 W37	348	500	2.0
79	5	28	16026	S30 W50	346	300	2.0
79	5	29	16026	S30 W61	346	300	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S30 E49			H		0	1	AXX
	S29 E36			B		40	5	CSO
	S29 E22			B		10	2	BXO

MCMATH REGION 16042 CMP DATE 25.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	5	27	16042	N29 W30	341	400	2.0
79	5	28	16042	N28 W47	343	300	2.5
79	5	29	16042	N28 W58	343	400	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS

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MCMATH REGION 16042 (CONT) CMP DATE 25.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	30	16042	N29 W70	341	400	2.0									

MCMATH REGION 16030 CMP DATE 25.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	18	16030	S20 E88	342	1200	2.5									
79	5	19	16030	S20 E77	340	2500	3.0									
79	5	20	16030	S22 E62	341	2800	3.0									
79	5	21	16030	S22 E49	341	3400	3.5									
79	5	22	16030	S22 E36	341	3500	3.5		S21 E35				B	110	3	BXO
79	5	23	16030	S22 E23	340	3200	3.0									
79	5	27	16030	S21 W29	340	2300	2.5									
79	5	28	16030	S21 W42	338	2000	2.5									
79	5	29	16030	S22 W54	339	2200	2.5									
79	5	30	16030	S21 W68	339	2100	2.5									
79	5	31	16030	S22 W80	339	1300	1.5									

MCMATH REGION 16031 CMP DATE 26.0 RETURN OF REGION 15967 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	19	16031	N17 E80	337	1700	2.0	20617	N18 E69	327	(X)	4				
79	5	20	16031	N17 E70	333	3400	2.5	20617	N17 E71	332	(AP)	4				
79	5	21	16031	N17 E57	333	3900	3.0	20617	N17 E58	332	(AP)	4				
79	5	22	16031	N17 E45	332	4500	3.0	20617	N17 E44	332	(AP)	5				
79	5	23	16031	N17 E33	330	4000	3.0									
79	5	24	16031					20617	N17 E17	333	(BP)	5				
79	5	25	16031					20617	N18 E07	330	(BP)	4				
79	5	26	16031					20617	N18 W07	329	(AP)	5				
79	5	27	16031	N18 W20	331	4400	3.0	20617	N17 W18	327	(BP)	5	B	150	16	ESO
79	5		16031					20632	N22 W07	316	(B)	3				
79	5	28	16031	N18 W34	330	4500	3.0	20617	N18 W31	327	(BP)	5	B	270	8	DSO
79	5	29	16031	N18 W46	331	3800	3.0	20617	N18 W44	328	(BY)	5	B	250	9	ESI
79	5	30	16031	N18 W59	330	3200	3.0	20617	N18 W57	327	(B)	5	P	200	12	DAO
79	5	31	16031	N18 W72	331	3200	3.0	20617	N17 W70	327	(B)	5				

MCMATH REGION 16032 CMP DATE 26.9 RETURN OF REGION 15968 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	20	16032	S21 E84	319	1200	2.0									
79	5	21	16032	S23 E72	318	2300	2.5									
79	5	22	16032	S24 E59	318	3000	3.0									
79	5	23	16032	S24 E45	318	2700	2.5									
79	5	27	16032	S22 W08	319	2500	2.0									
79	5	28	16032	S22 W22	318	2000	2.5	20635	S24 W15	311	(AP)	2	B	0	1	AXX
79	5	29	16032	S23 W31	316	2000	3.5	20635	S24 W30	314	(AP)	3	B	0	1	AXX
79	5	30	16032	S23 W45	316	1800	2.5	20635	S23 W41	311	(B)	3	P	20	3	CRO
79	5	31	16032	S23 W58	317	1800	2.0	20635	S24 W58	315	(AP)	2	H	0	1	AXX
79	6	2	16032	S24 W85		800	2.0									

MCMATH REGION 16048 CMP DATE 26.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	30	16048	N12 W48	319	300	2.0	20638	N10 W49	319	(B)	2	P	10	3	BXO
79	5	31	16048	N12 W60	319	400	2.0	20638	N13 W63	320	(AP)	3	H	0	1	AXX

MCMATH REGION 16034 CMP DATE 28.0 RETURN OF PART OF REGION 15968 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	21	16034	S34 E80	310	900	1.5	20624A	S34 E79	311	(AP)	2				
79	5	22	16034	S34 E71	306	1600	2.5	20624A	S34 E65	311	(AP)	2				
79	5	23	16034	S34 E58	305	1200	2.0									
79	5	24	16034					20624A	S34 E42	308	(AP)	3				
79	5	25	16034					20624A	S34 E29	308	(AP)	3				

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MCMATH REGION 16034 (CONT) CMP DATE 28.0 RETURN OF PART OF REGION 15968 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	26	16034					20624A	S34 E16	306	(AP)	4			
79	5	27	16034	S33 E06	305	900	1.5	20624A	S34 E04	305	(AP)	3	B	40	3 CSO
79	5		16034					20633	S24 E15	294	(AP)	2	B	10	1 HRX
79	5	28	16034	S34 W08	304	900	2.0	20624A	S35 W08	304	(AP)	3	B	10	1 AXX
79	5	29	16034	S34 W18	303	1000	2.0	20624A	S35 W21	305	(AP)	3	B	0	1 AXX
79	5	30	16034	S33 W31	302	900	2.0	20624A	S35 W33	303	(AP)	2	P	0	1 AXX
79	5	31	16034	S34 W43	302	1200	2.0								
79	6	2	16034	S34 W70		1000	1.5								

MCMATH REGION 16036 CMP DATE 28.3 RETURN OF REGION 15971 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	22	16036	N24 E80	297	1800	2.5								
79	5	23	16036	N24 E65	298	2300	3.0								
79	5	27	16036	N26 E11	300	2400	2.5								
79	5	28	16036	N26 W03	299	2100	3.0								
79	5	29	16036	N26 W14	299	1800	2.5								
79	5	30	16036	N26 W27	298	1600	2.5								
79	5	31	16036	N26 W38	297	1700	2.0								
79	6	2	16036	N26 W63		1300	2.0								

MCMATH REGION 16047 CMP DATE 28.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	28	16047	S17 E03	293	200	2.0								

MCMATH REGION 16050 CMP DATE 28.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	31	16050	S19 W34	293	100	1.0								

MCMATH REGION 16039 CMP DATE 29.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	23	16039	S15 E79	284	100	2.0								

MCMATH REGION 16045 CMP DATE 29.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	28	16045	S08 E12	284	200	3.0	20636	S06 E12	284	(B)	3	B	20	5 AXX
79	5	29	16045	S08 W01	286	200	2.0	20636	S09 W02	286	(AP)	2	B	0	1 AXX
79	5	30	16045	S08 W16	287	200	2.0	20636	S09 W17	287	(AP)	3	P	10	1 AXX
79	5	31	16045	S08 W29	288	100	1.0								

MCMATH REGION 16038 CMP DATE 29.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	23	16038	S10 E80	283	100	2.0								

MCMATH REGION 16041 CMP DATE 29.8 RETURN OF REGIONS 15974 AND 15976 ROTATIONS 2 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	5	22	16041	N13 E90	287	400	1.0								
79	5	23	16041	N18 E78	285	2000	2.0								
79	5	24	16041					20627	N14 E60	290	(AP)	4			

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MCMATH REGION 16041 (CONT) CMP DATE 29.8 RETURN OF REGIONS 15974 AND 15976 ROTATIONS 2 AND 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	5	25	16041					
79	5	26	16041					
79	5	27	16041	N17	E30	281	3900	3.0
79	5		16041					
79	5	28	16041	N17	E16	280	3800	3.0
79	5		16041					
79	5	29	16041	N17	E04	281	3800	2.5
79	5	30	16041	N17	W09	280	3200	2.5
79	5		16041					
79	5	31	16041	N17	W22	281	3200	2.5
79	5		16041					
79	5		16041					
79	6	1						
79	6	2	16041	N17	W50		3200	2.0
79	6	3	16041	N17	W63		3200	2.5
79	6	4	16041	N17	W75		2400	3.0
79	6	5	16041	N20	W85		1300	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20627	N16	E48	289	(AP)	3				
20627	N16	E31	291	(BY)	4				
20627	N16	E19	290	(AP)	5	B	70	3	CSO
20634	N23	E38	271	(B)	4	B	10	7	BXO
20627	N16	E07	289	(AP)	4	B	40	1	HSX
20634	N23	E23	273	(B)	3	B	10	6	BXO
20627	N15	W08	292	(AF)	4	B	20	1	HSX
20627	N16	W20	290	(AP)	4	P	40	7	CSO
	N26	E03				P	0	1	AXX
20627	N15	W34	291	(AP)	3	H	30	3	CSO
20639	N17	W18	275	(AF)	2				
20640	N21	W14	271	(AF)	2	H	0	2	BXO
20627	N17	W46		(AP)	3				

MCMATH REGION 16040 CMP DATE 30.0 RETURN OF REGION 15973 AND PART OF REGION 15968

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	5	23	16040	S32	E85	278	300	1.5
79	5	24	16040					
79	5	25	16040					
79	5	26	16040					
79	5	27	16040	S31	E30	281	1800	3.0
79	5	28	16040	S32	F17	279	2000	2.5
79	5	29	16040	S33	E07	278	2200	2.0
79	5	30	16040	S32	W09	280	2200	2.0
79	5	31	16040	S33	W17	276	2500	2.0
79	6	2	16040	S34	W42		1600	2.0
79	6	3	16040	S34	W54		1600	2.5
79	6	4	16040	S34	W65		1600	2.0
79	6	5	16040	S34	W78		900	1.0

SUNSPOT DATA ROTATIONS 2 AND 3

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20628	S32	E76	274	(B)	2				
20628	S32	E61	276	(B)	2				
20628	S32	E47	275	(B)	3				
20628	S32	E36	273	(B)	4	B	90	5	ESO
20628	S32	E22	274	(B)	4	B	40	8	CRO
20628	S33	E17	267	(AF)	3	B	10	4	AXX
	S36	E38				P	0	1	AXX
206248	S32	W09	266	AP	1	H	0	1	AXX

MCMATH REGION 16043 CMP DATE 30.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	5	27	16043	S22	E33	278	100	2.5
79	5	28	16043	S22	E19	278	300	2.0
79	5	29	16043	S22	E07	278	100	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 16044 CMP DATE 30.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	5	27	16044	S20	E43	266	800	3.0
79	5	28	16044	S20	E29	267	700	3.0
79	5	29	16044	S21	F17	268	600	2.5
79	5	30	16044	S20	F03	266	600	2.5
79	5	31	16044	S21	W09	266	500	2.5
79	6	2	16044	S22	W35		500	2.5
79	6	3	16044	S22	W48		500	2.5
79	6	4	16044	S22	W63		500	2.0
79	6	5	16044	S21	W76		300	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20641	S21	W10	267	(AF)	2	H	0	2	AXX

Note: No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on May 3, 4, 24, 25, and 26, 1979.
No sunspot observations were made at Mt. Wilson on May 6 and 23, 1979.

DAILY CALCIUM PLAGE INDEX

MAY 1979

YR	MO	DAY	INDEX
79	5	1	52.3
79	5	2	52.9
79	5	3	*
79	5	4	*
79	5	5	42.2
79	5	6	35.8
79	5	7	44.3
79	5	8	45.9
79	5	9	51.1
79	5	10	54.0
79	5	11	54.6
79	5	12	49.9
79	5	13	54.6
79	5	14	47.4
79	5	15	51.2
79	5	16	48.0
79	5	17	37.1
79	5	18	34.4
79	5	19	31.9
79	5	20	33.2
79	5	21	36.8
79	5	22	42.3
79	5	23	40.2
79	5	24	*
79	5	25	*
79	5	26	*
79	5	27	46.9
79	5	28	45.2
79	5	29	38.7
79	5	30	32.2
79	5	31	35.5

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

MAY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0003	0052	0020	1-	3	1		1	1				0002	15974
01	0354	0614	0408	2-	3	1			1				0354E	15974
01	2026	2125	2042	1	5	2			2	1	2		2024	15974
02	1210	1228D	1228	1-	1				1		1		1210	15974
02	1245	1315	1258	1-	1				1		1		1246	15967
02	1651	1740	1703	2+	5	4	1	5	2	1	2		1649	15968
03	0126	0250	0140	1-	3	1			1				0127	15974
03	0714	0740	0723	1-	5	1		1	3				0710	15987
04	2035	2059	2041	1-	3				1		2		2031	15990
04	2104	2213	2139	1-	5				2	1	2		2133	15987
05	2257	2346	2306	1-	1				1				2255	15990
06	1645	1800	1648	1-	1	1							1644E	15974
06	2207	2311	2214	1	5	1			2	1	2		NF	
06	2336	2340D	2340	1+	5	1			2		2		2335	15990
08	0046	0135	0055	1-	5	1			2				0050E	15990
08	2217	2252	2226	1-	3				2				2217	15974
09	0726	0824D	0737	1-	1				1				0713E	15986
09	0829	0900	0840	1	5	1		1	2		2		0818	15990
09	1200	1220	1203	1	5	1		2	2		2		NF	
09	1220	1343	1240	1-	3			1	1		1		*	
09	1343	1500	1410	1-	3			1	1		1		1348	15990
10	2258	2347	2307	1-	5				2		2		2300	15992
11	0036	0158	0100	1-	1				1				0038	15994
11	1058	1128	1100	1-	1			1					1057	15996
11	1244	1308	1248	1-	1			1					1246E	15992
13	0225	0330	0234	1-	1				1				0227	16001
13	0941	1024	1011	1-	3			1					*	
13	1059	1027	1009	1-	3		1	1					*	
14	0006	0044	0012	1-	1				1				0006	16014
14	0934	1038	0944	1	5	2		4	4		1		0936E	16012
14	1013	1028	1019	1-	1			1	1				1012	15996
14	1033	1100	1038	1	1		1						*	
14	1540	1625	1555	1-	3				1		2		1540	16014
14	1928	2020	1946	1-	1					1			1929	16003
15	2220	2322	2227	1-	3				2		1		2218	16012
16	1405	1515	1445	1-	1				1		1		1405	15999
17	0116	0240	0126	2-	3				2				0117	15994
17	0514	0613D	0525	1-	5			3	1		1		*	
17	0911	0935	0920	1	5			5	2				0856	15996
17	1611	1742	1616	1-	1			1					*	
17	1642	1720	1651	1	5	4		1	3	1	4		1640	15996
17	1933	1955D	1944	1-	5	1			2		3		1939	15996
17	2017E	2052	2017	1-	1						1		2010	15996
17	2314	0025	2324	1-	5				2		2		2316	15996
18	0036	0147	0054	1	3				2				0040	15996
18	0651	0810	0708	1-	3			3	1				*	
18	0715	0737	0717	1-	1			1					*	
18	0928	0958	0931	1-	1			1					*	
18	1532	1620	1551	1-	5	1		4	2		5		1534	15996
18	1927	2017	1939	1-	3				1		2		1925	16014
18	2153	2231	2204	1-	5				2		3		NF	
18	2303	0012	2313	1-	5				2		3		NF	
19	0223	0324	0236	1	1				1				*	
19	0427	0632	0437	2-	5	1		1	1				0428	15999
19	1324	1430	1334	1-	1				1		1		*	
19	2037	2134	2045	1	5				2	1	3		2035	15999
19	2220	0005	2242	1	5				2		3		NF	
20	0458	0623	0508	1+	5	2		1	2		2		NF	
20	0545	0600	0552	1-	3				1		1		*	
20	1018	1030D	1030	1-	5	1		1	2		3		*	
20	1108	1235	1126	1	5	2		2	4		3		*	
20	1246	1500	1330	1	1				1		1		*	
20	1310	1515	1327	2	5	3	1	3	3		5		NF	
20	1610	1710	1627	1	5	2	1	2	4		4		NF	
20	1717	1728D	1717	1-	5			1	2		4		NF	
20	1805	1817D	1817	1-	1				1		1		1806	16025
20	1828	1910	1847	1-	5				2		4		1824	16025
20	1913	2010	1922	1-	3				1		3		1909	16025
20	2343	0101	2354	1-	1				1				2342	16025

SUDDEN IONOSPHERIC DISTURBANCES

MAY 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
21	0312	0350	0317	1-	1				1				0312	16025
21	0459	1012	0632	2+	3			1	1				0458	16030
21	0538	0602	0542	1	3	1		3			2		0530	16030
21	0610	0645	0618	2	3	4		6	2		2		NF	
21	0832	0859	0842	1-	1		1	1					0830	16025
21	1225	1425	1325	1-	3		1		1		1		*	
21	1302	1400	1315	1+	5	3	1	2	3		5		*	
21	1446	1520	1450	1-	5	1		1	2		3		1445	16025
22	1114	1150	1121	1-	5	2		1	2		2		1111	16030
24	1014	1100	1020	1-	5	2		2	3		2		1018E	16025
24	1332	1400	1335	1-	5	1	1		2		4		*	
27	1521	1645	1530	1-	1						1		*	
28	1503	1612	1530	1-	1				1		1		*	
29	0718	0904	0735	1-	5	2		1	2		1		*	
29	0920	1003	0931	1-	1			1					0931	16046
29	1046	1110	1054	1-	3		1	2	1				1040	16046

PERIODS OF NO OBSERVATIONS:

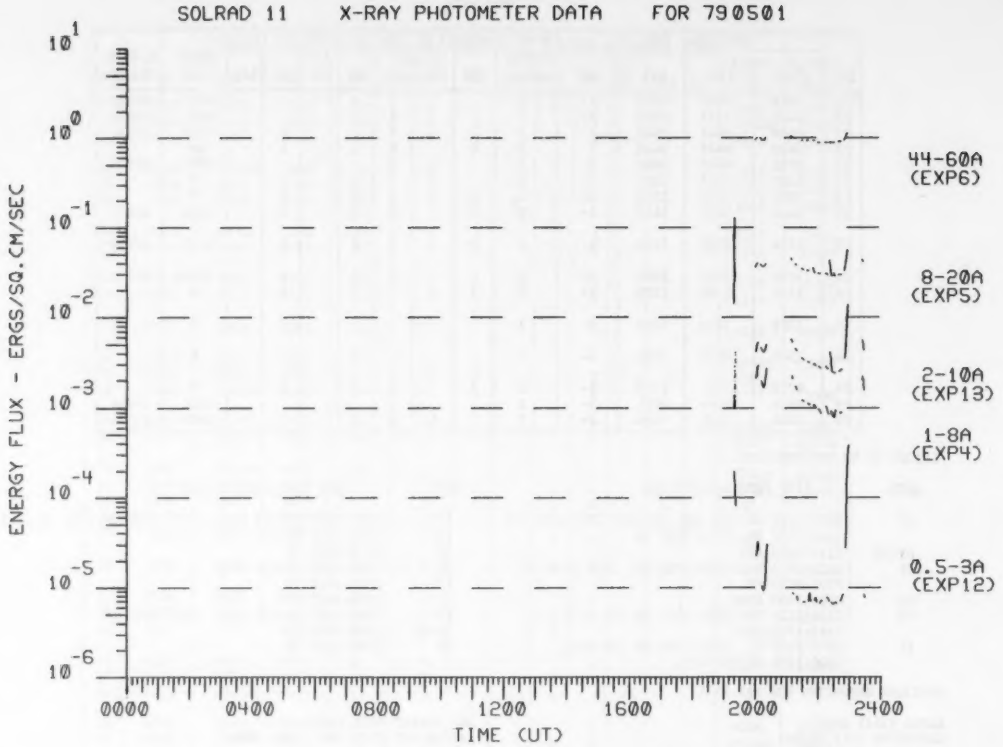
DATE	TIME (UT) and STATION
03	0850-1315 UM (10, 13, 16 kHz) 1700-1708 TM, 1900-1952 TM, 2108-2152 TM
05-08	2215-1500 A21
05	0021-0213 TM, 1717-1731 TM, 1912-1918 TM, 2006-2022 TM
06	0000-2400 TM
08	0115-0226 TM, 1000-1400 Um (16 kHz), 1710-1742 TM
15	0000-2400 CL, 1000-1330 UM (16 kHz), 1000-1330 UM (13 kHz)
17	0000-2400 UM (13 kHz), 0900-2400 Um (10, 16 kHz)
18	0000-1400 UM (10, 13, 16 kHz)
20	0955-1105 TM
22	0900-1400 UM (16 kHz)
23	1925-1950 TM
25	1333-1437 TM
29	1000-1345 UM (16 kHz), 2002-2040 TM
30-31	0000-2400 KD
30	1748-1814 TM

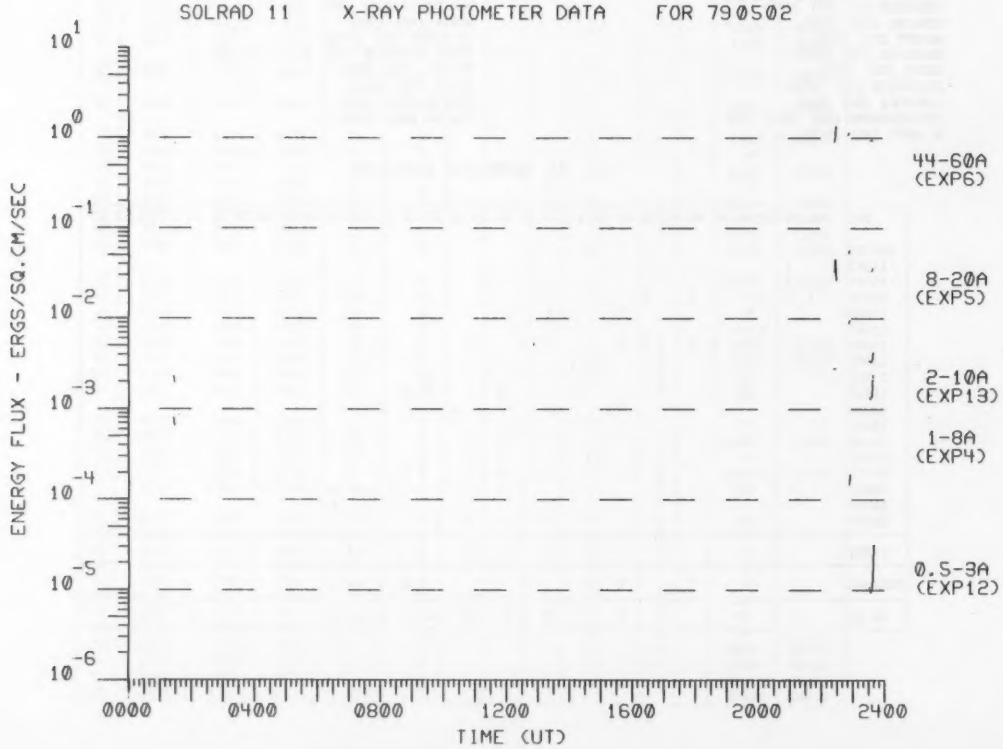
STATIONS REPORTING FOR MAY 1979

AAVSO (A21) (SES)
CHILWORTH (CL) (SCNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JULIUSRUH (JH) (SWF)
KANDILLI (KD) (SEA)
KUHLUNGSBORN (KU) (SEA, SPA)
MC MATH (MC) (SWF)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)
ZILINA (ZL) (SEA)

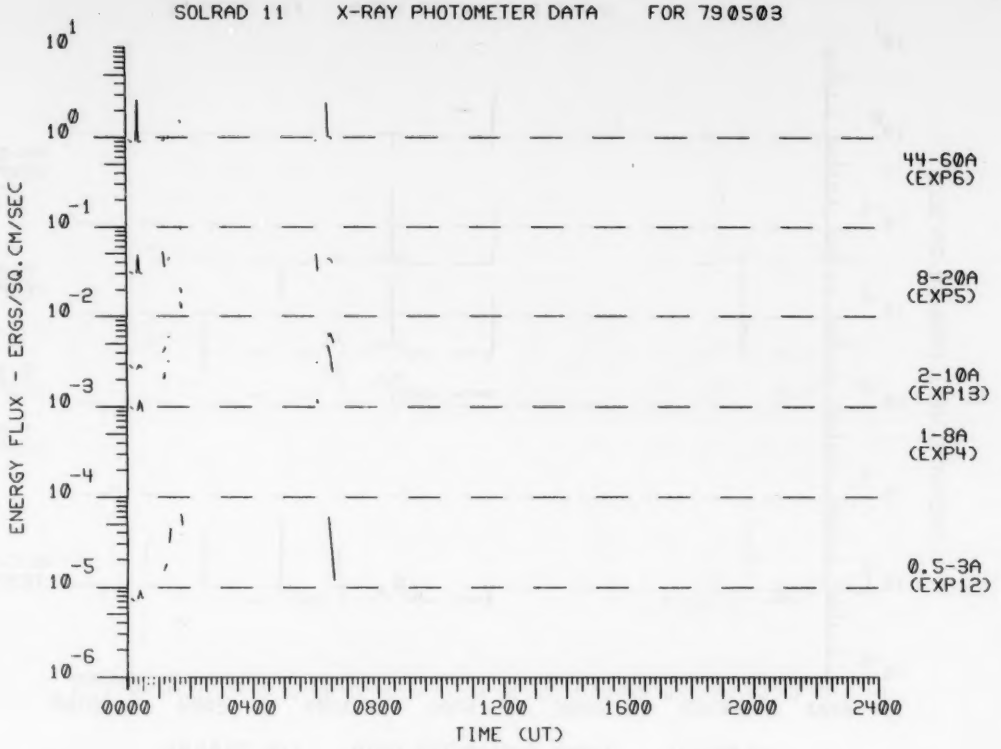
SIDs BY McMATH REGION

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
15967		1																													
15968		1																													
15974	3	1	1			1		1																							
15986									1																						
15987			1	1																											
15990				1	1	1		1	2																						
15992										1	1																				
15994											1						1														
15996											1			1			5	2													
15999																1			2												
16001													1																		
16003														1																	
16012														1	1																
16014														2				1													
16025																				4	3			1							
16030																					2	1									
16046																												2			
X-RAY																															
UNKNOWN						1			1									2	1	4	1										
NO FP									1		2	1					2	3	2	4	2			1			1	1	1		

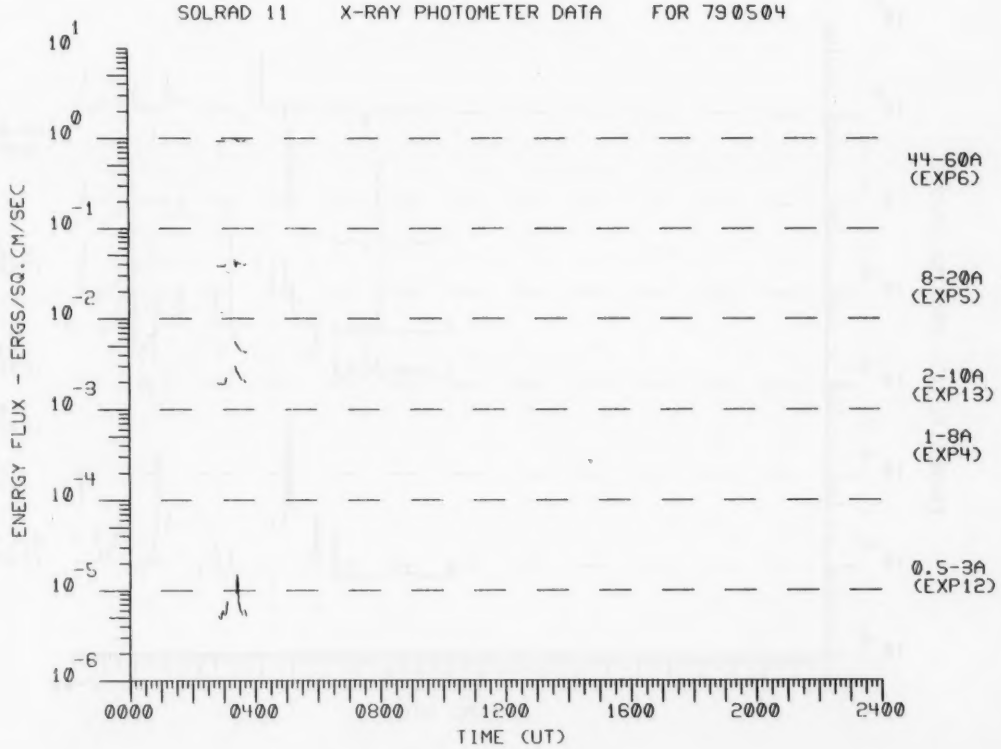

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790501
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

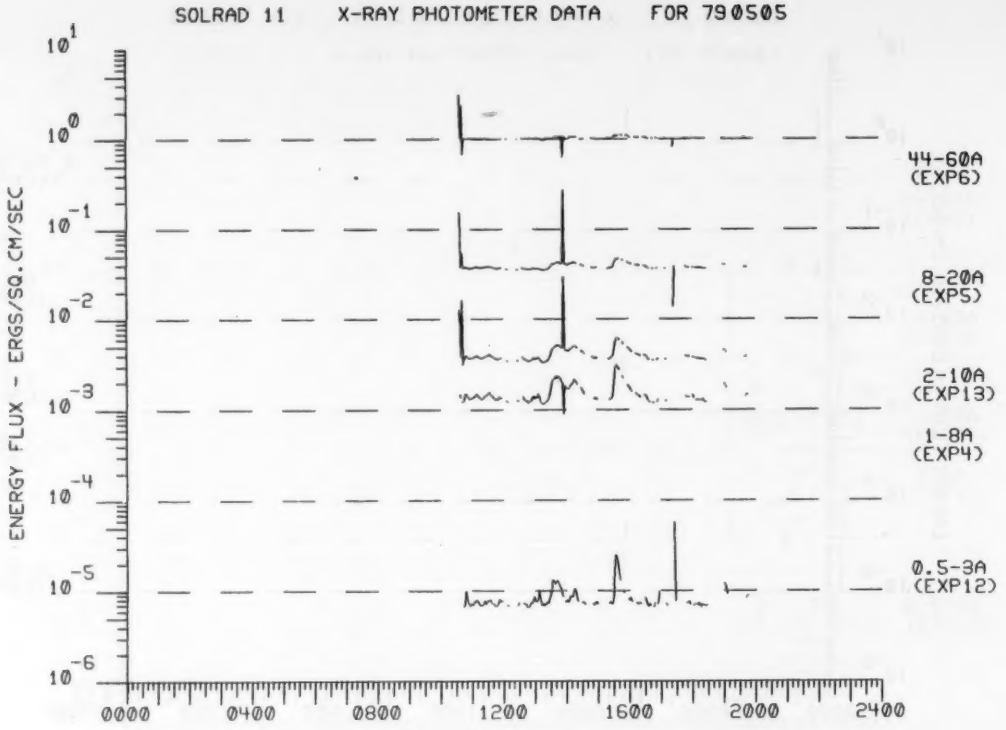

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790502
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

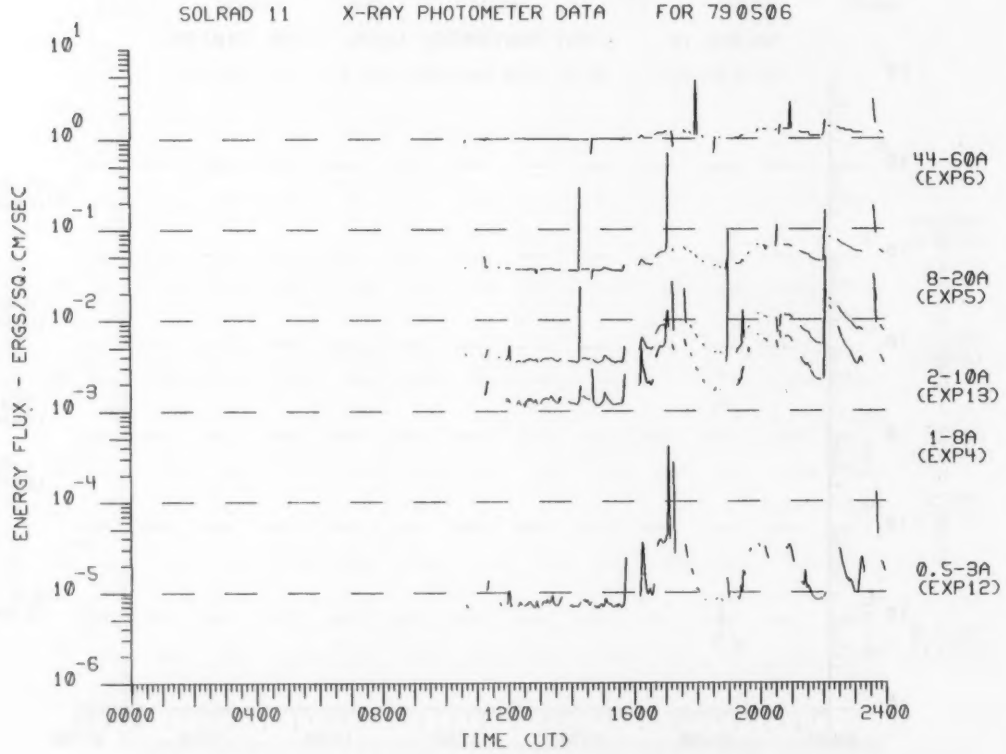
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790503

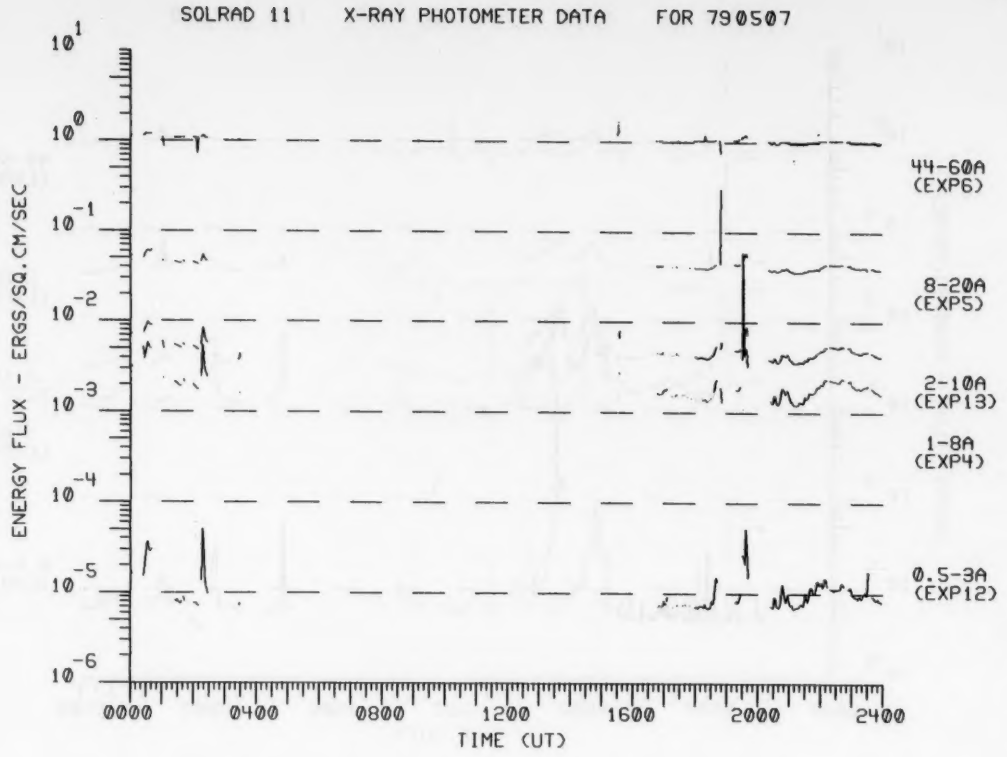


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790504




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790505
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790506
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)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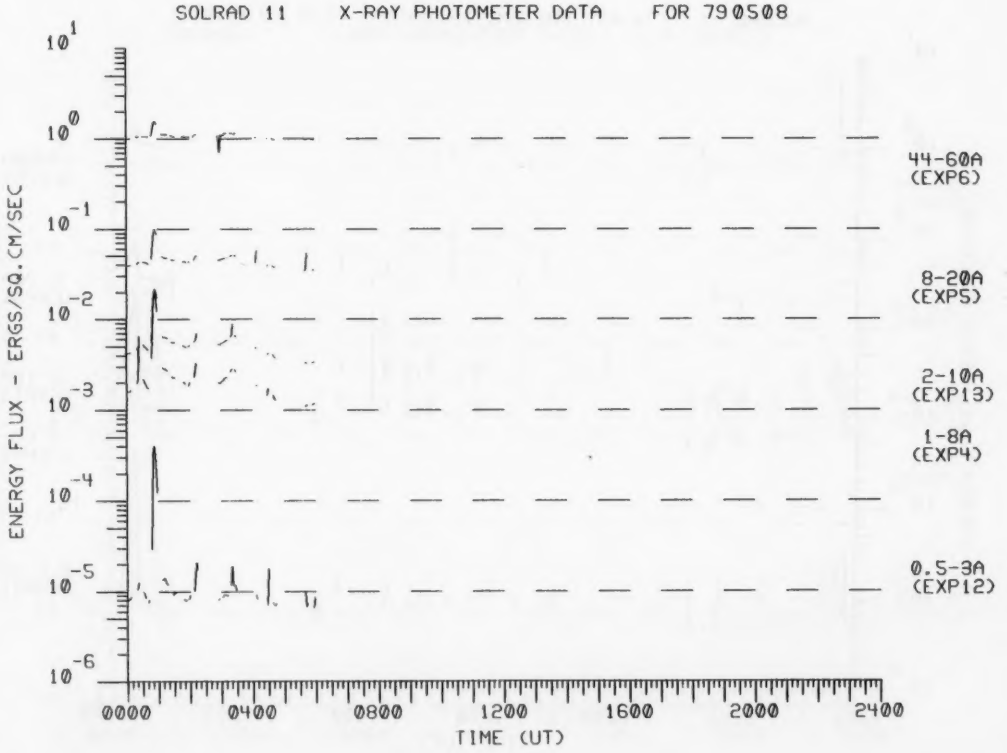
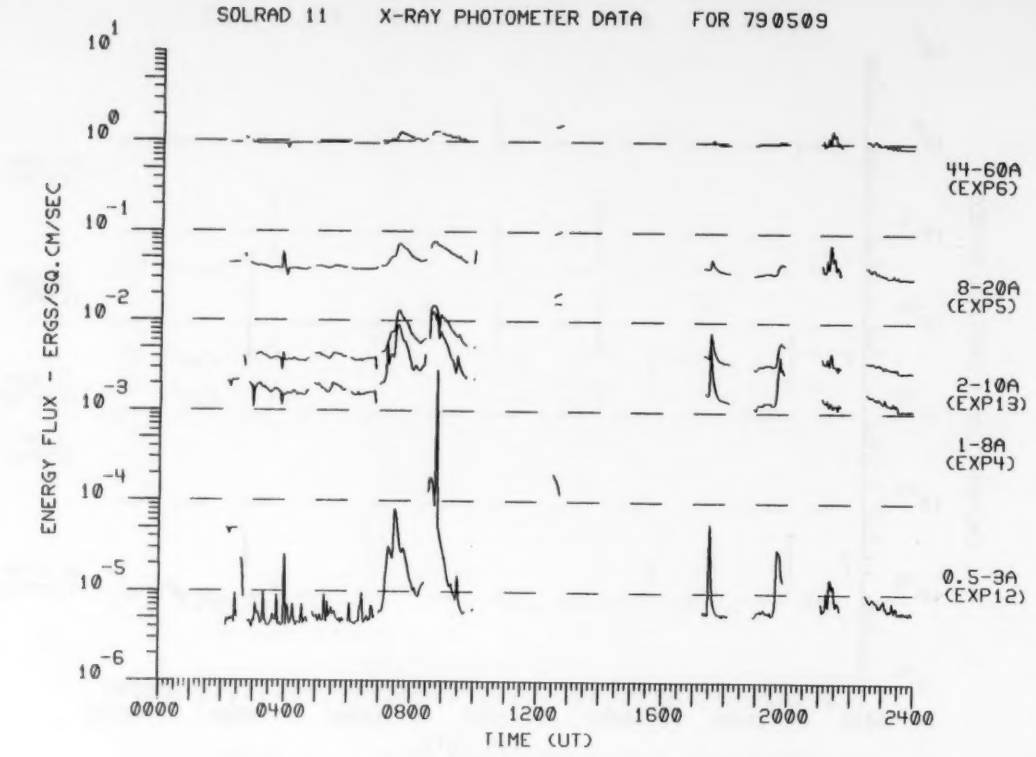
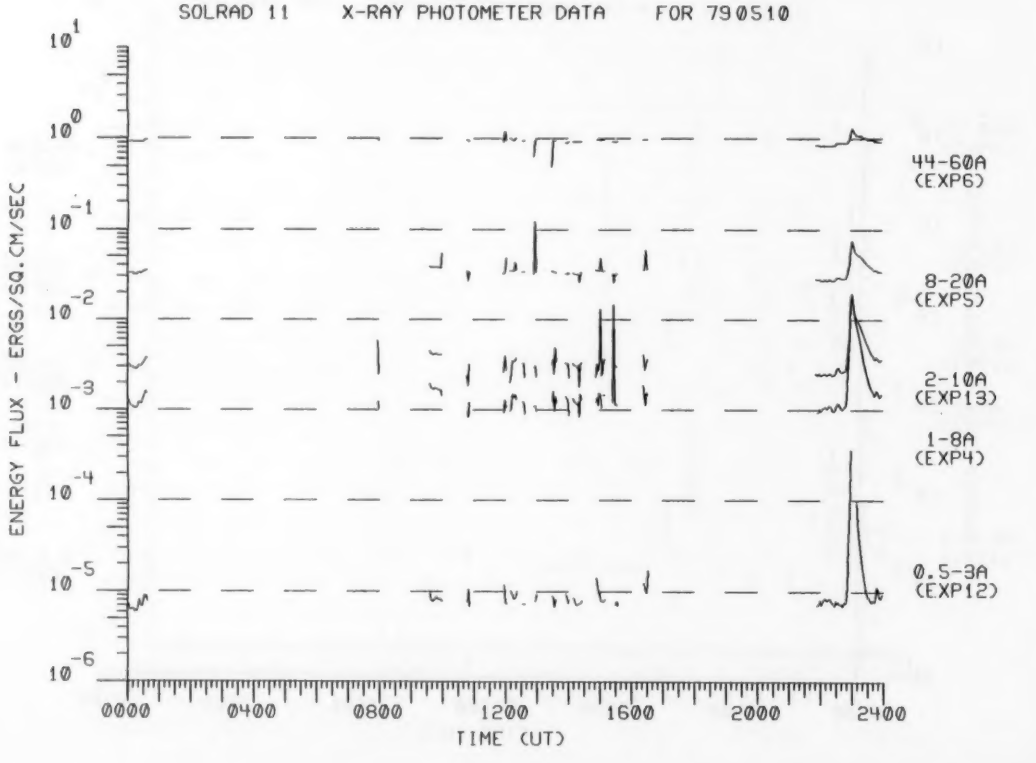
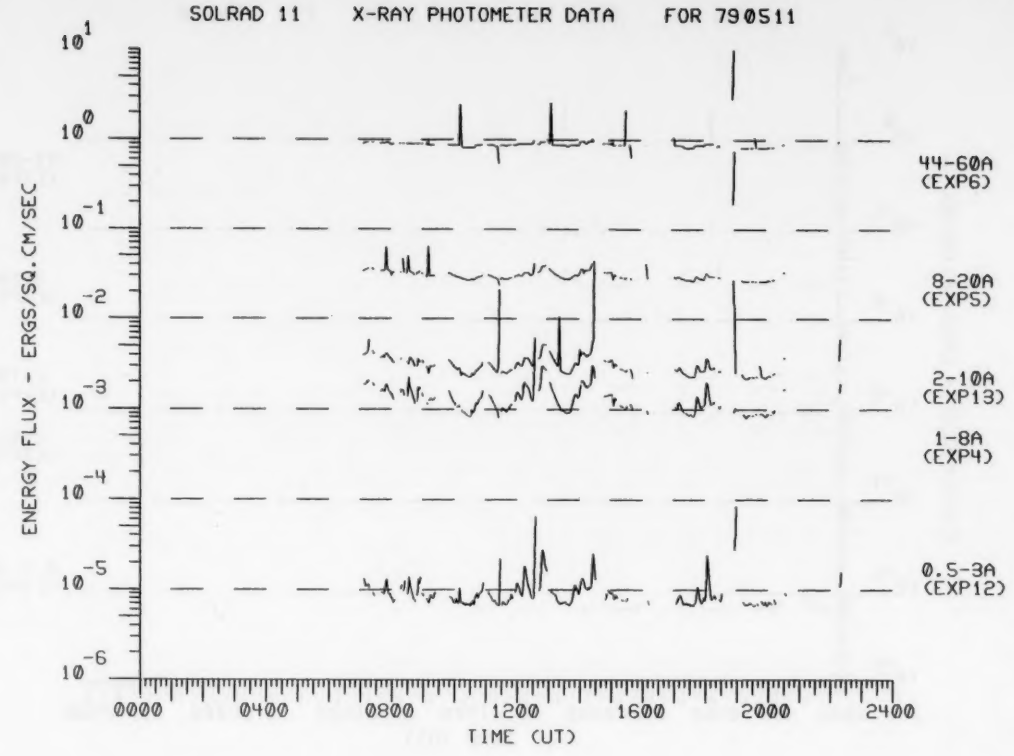
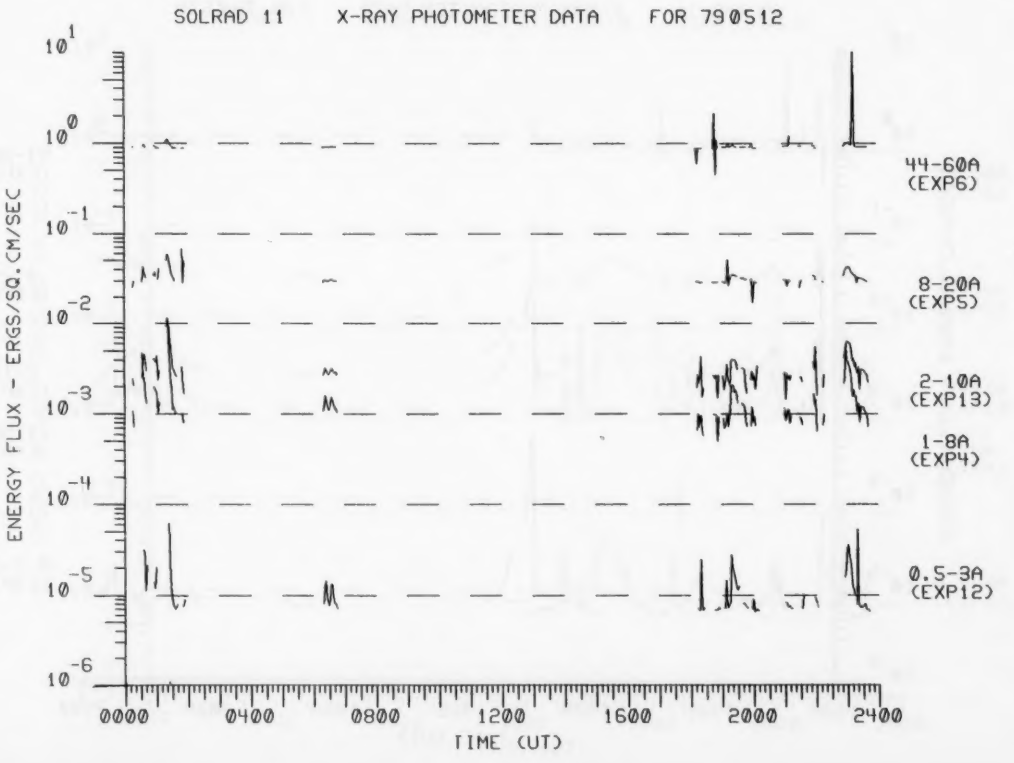
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

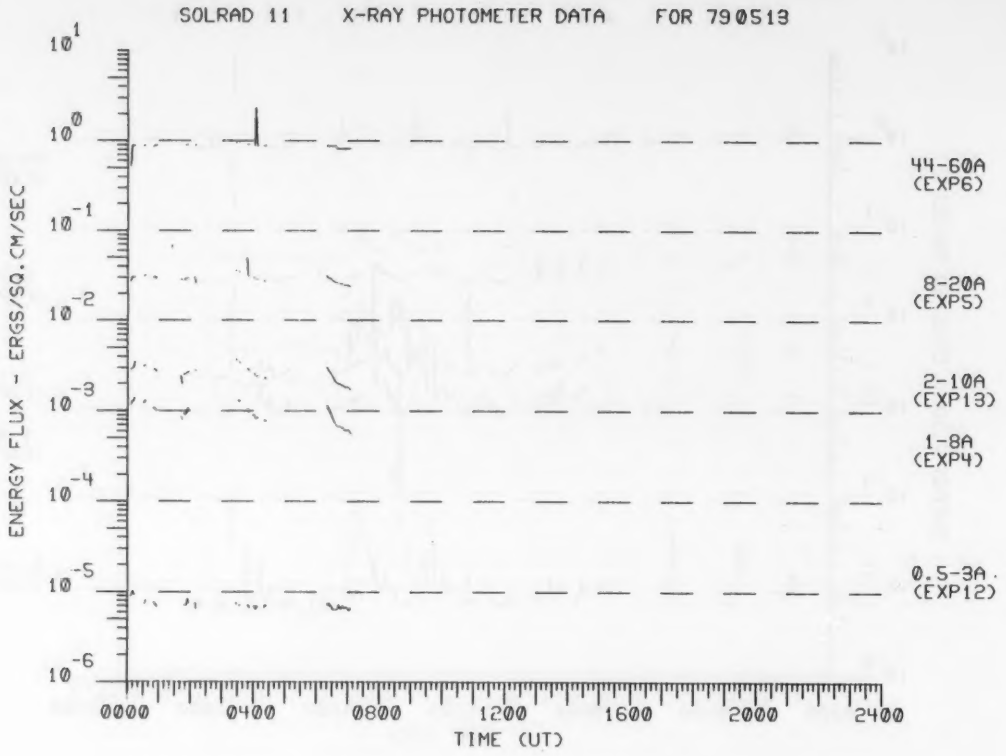

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790508
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

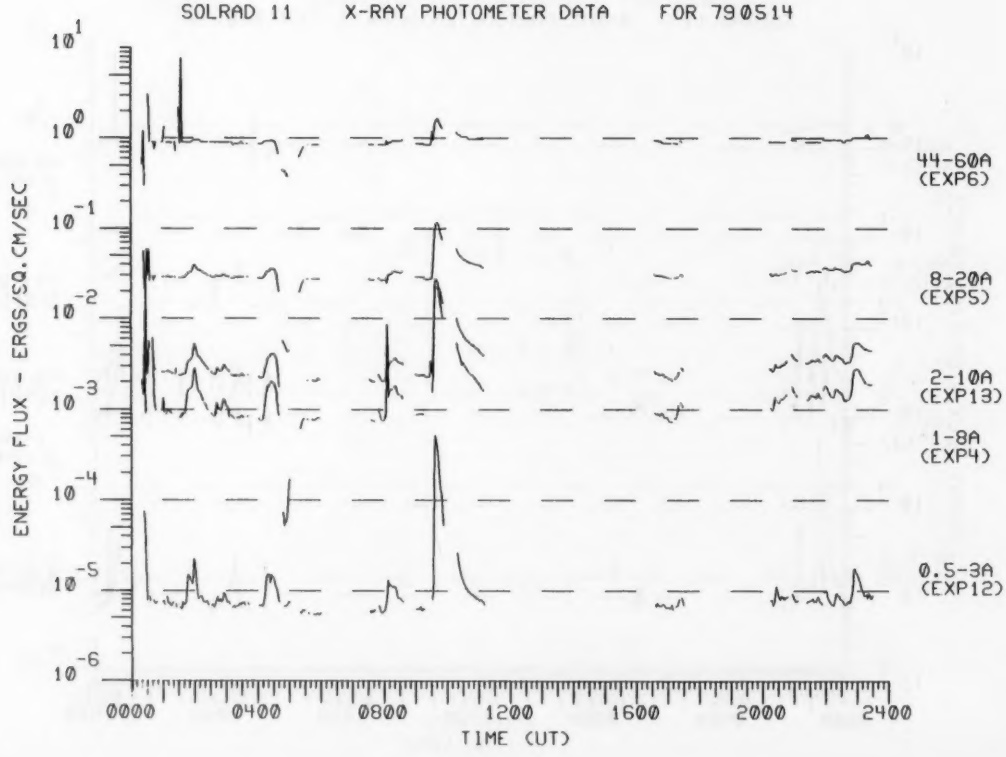

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790509
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

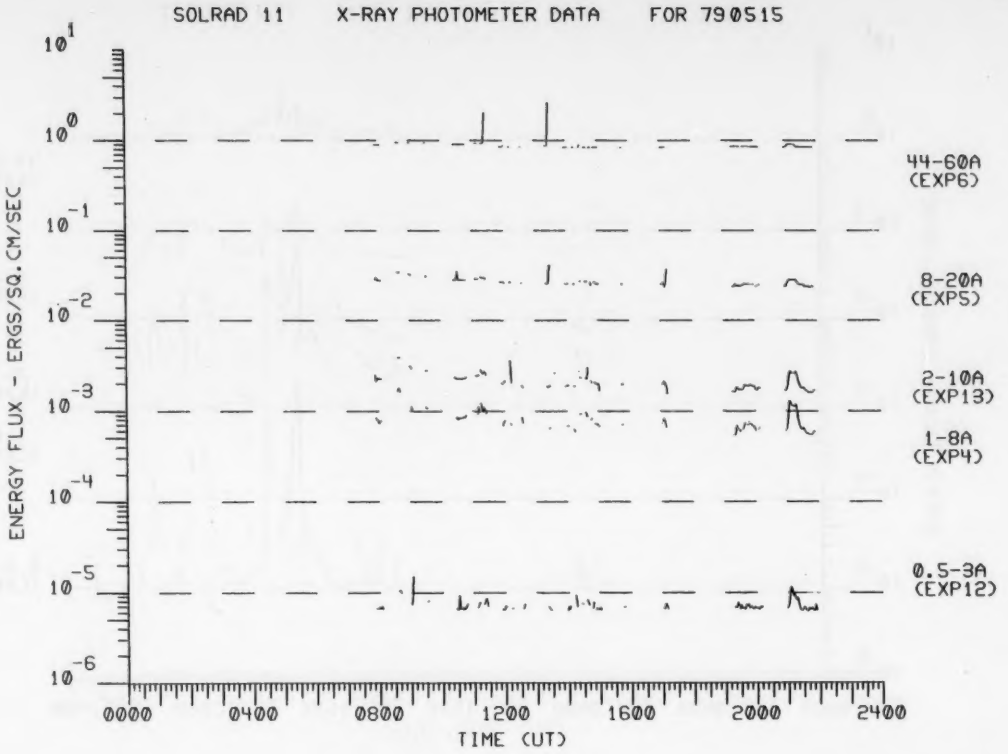

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790510
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

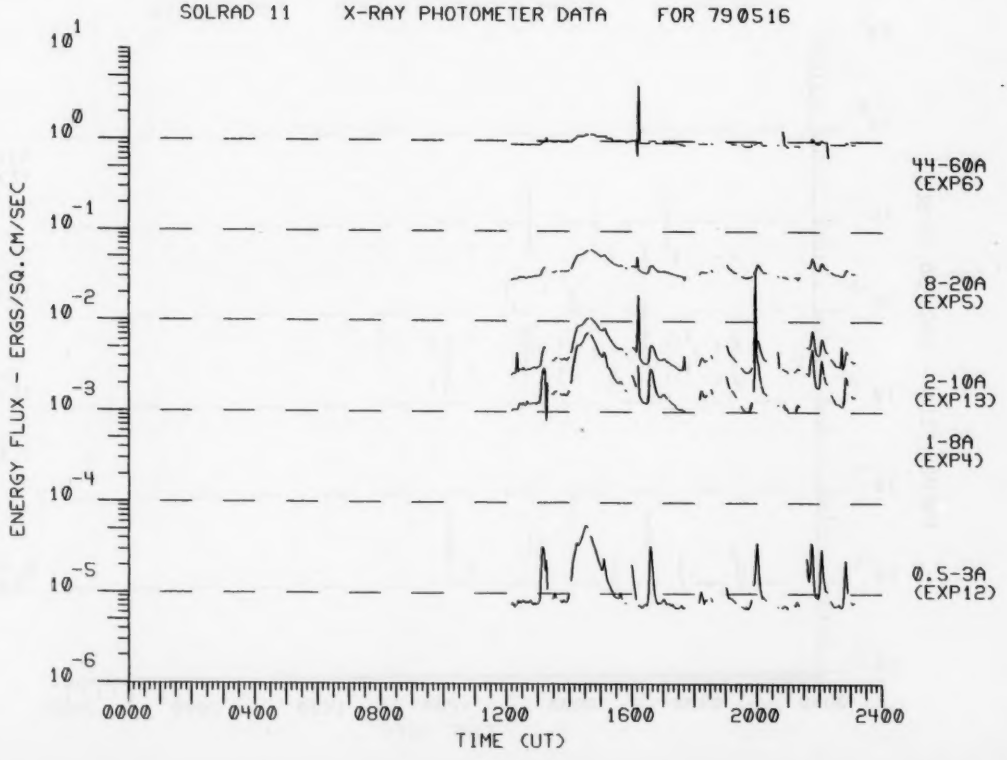

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790511
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

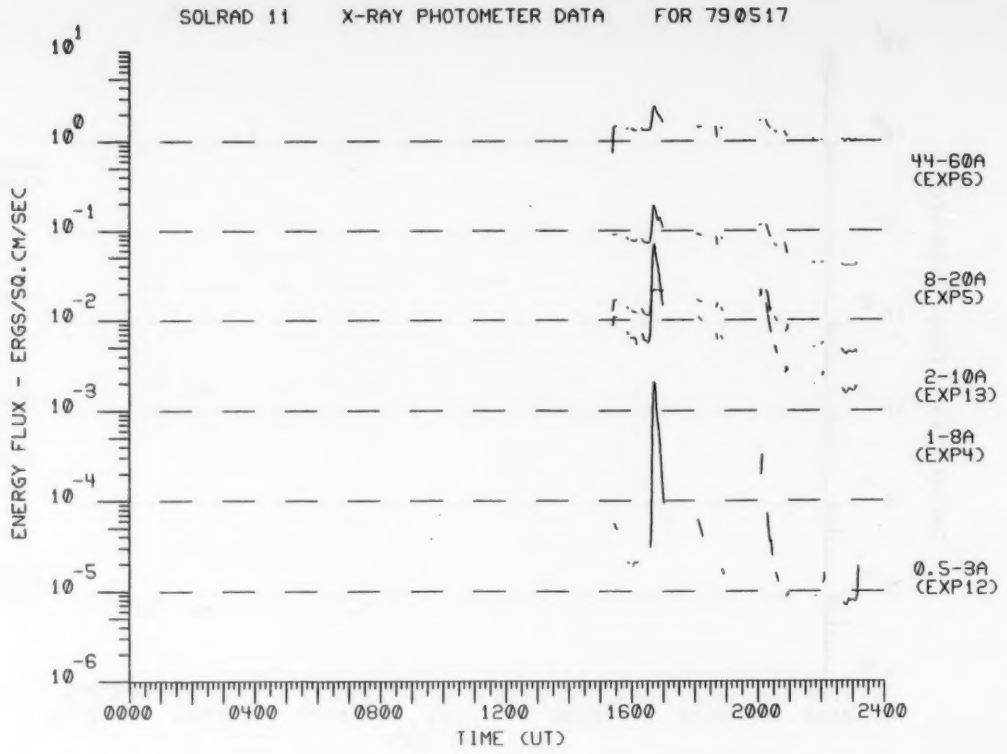

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790512
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

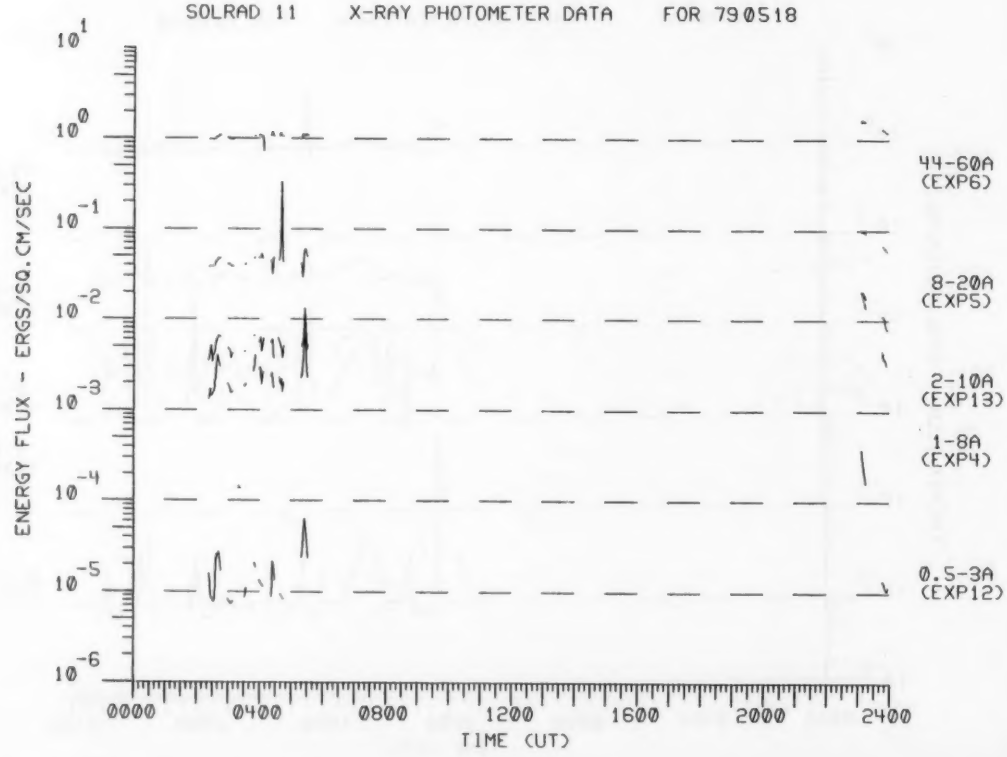

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790513
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

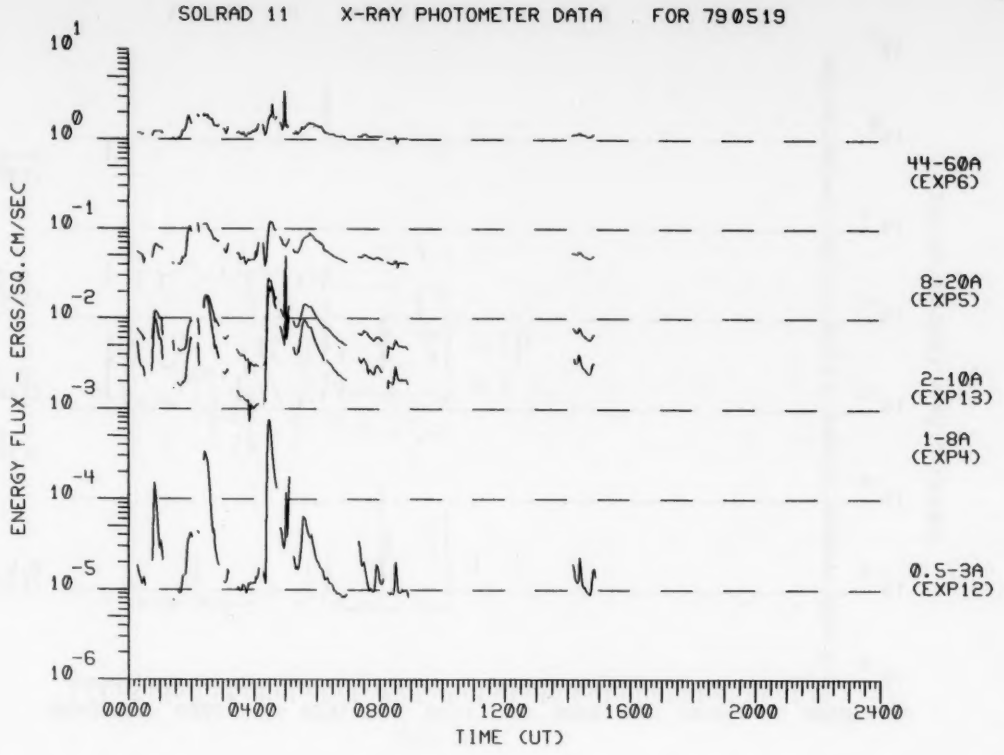

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790514
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

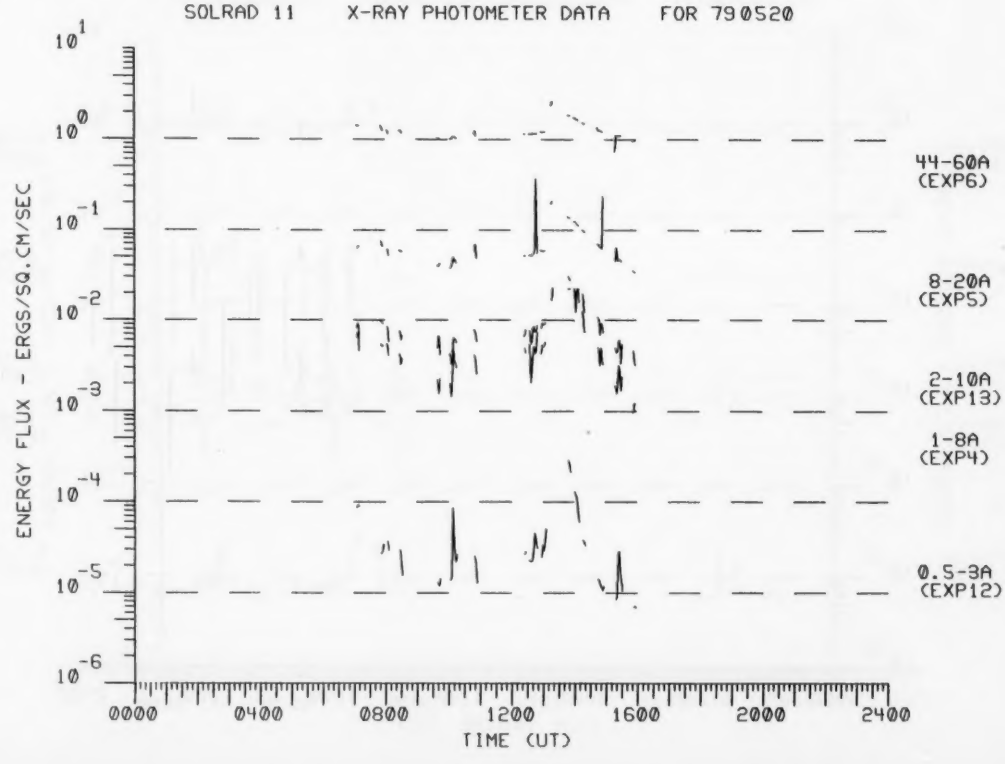

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790515
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

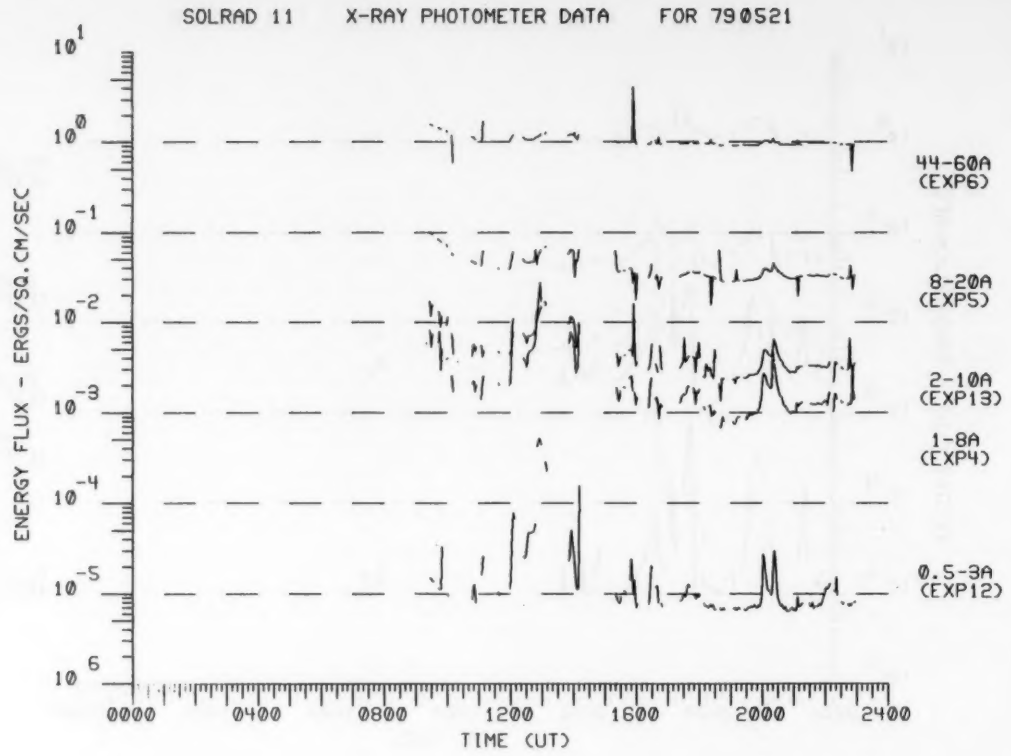

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790516
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

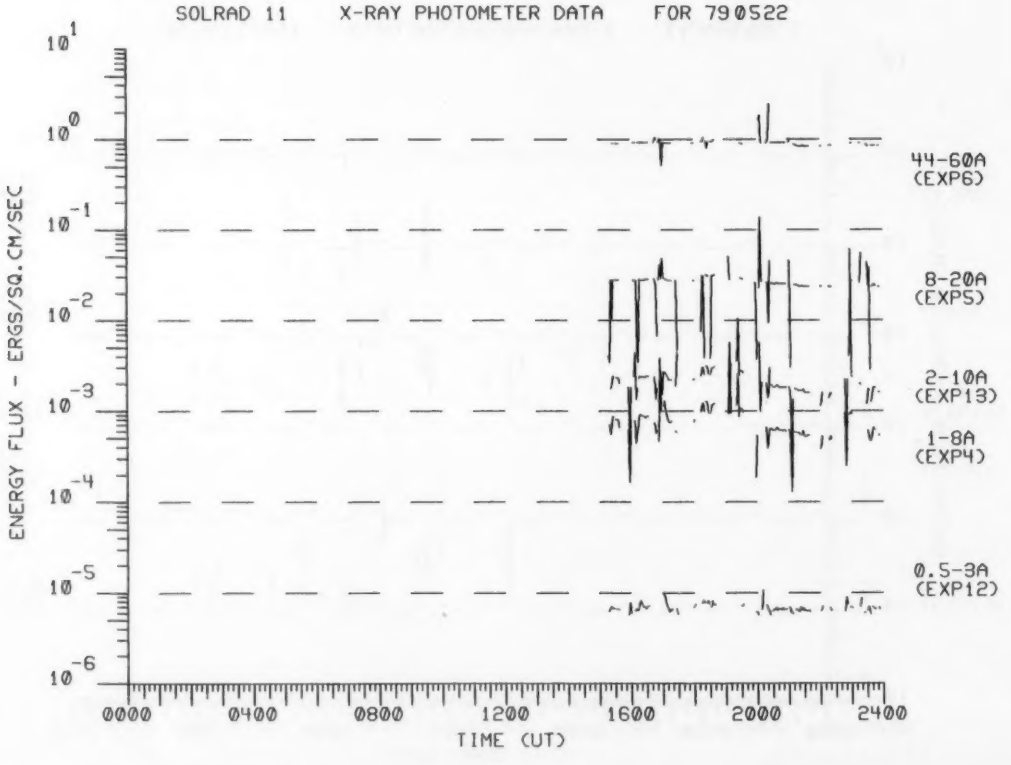

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790517
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

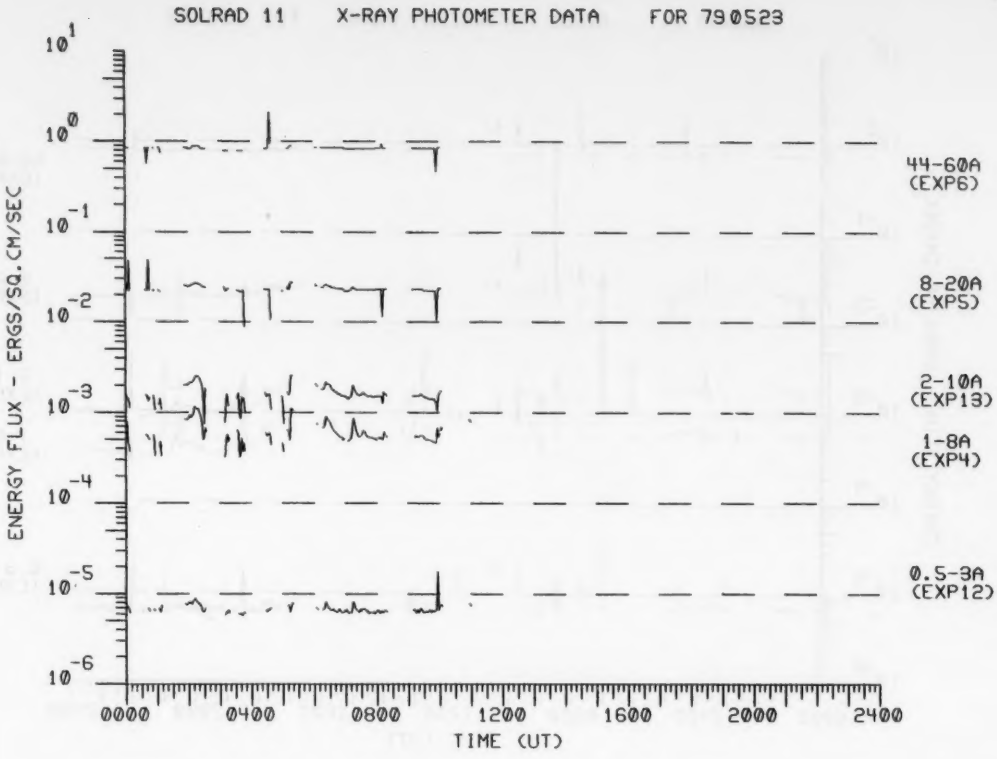

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790518
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

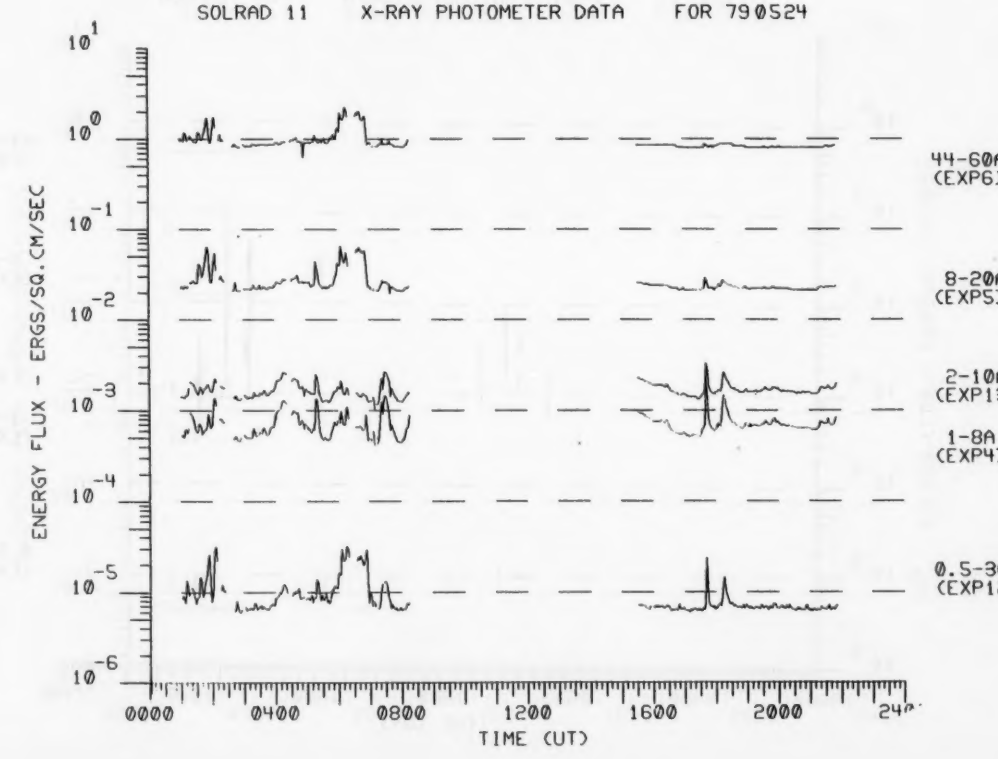

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790519
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

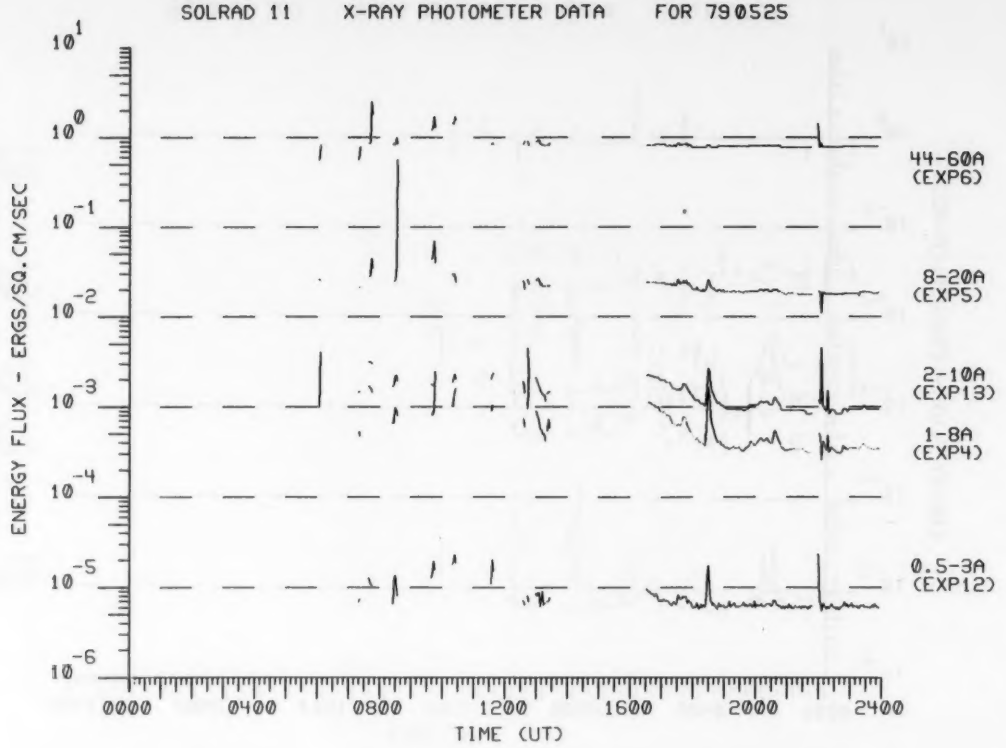

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790520
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

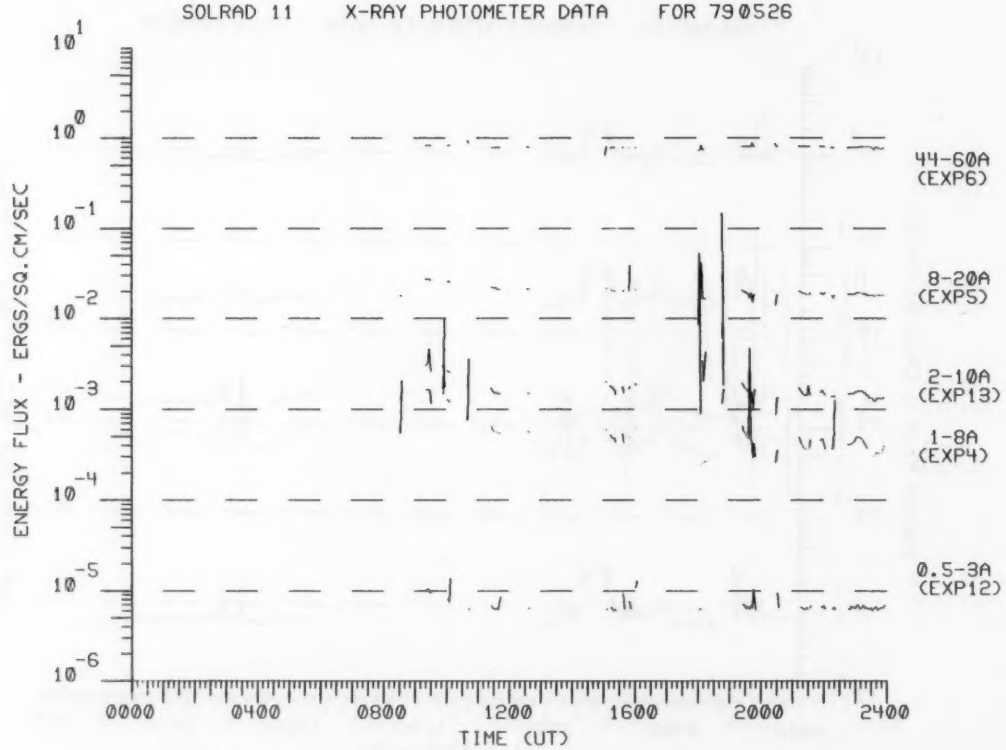

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790521
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790522
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

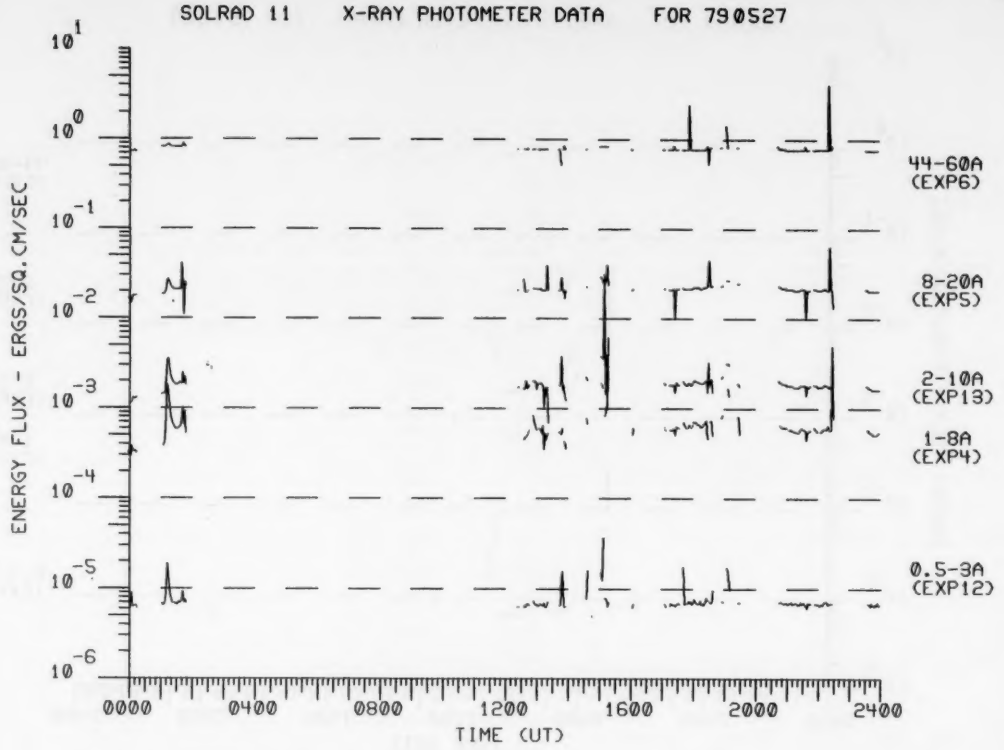

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790523
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790524
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
TIME (UT)

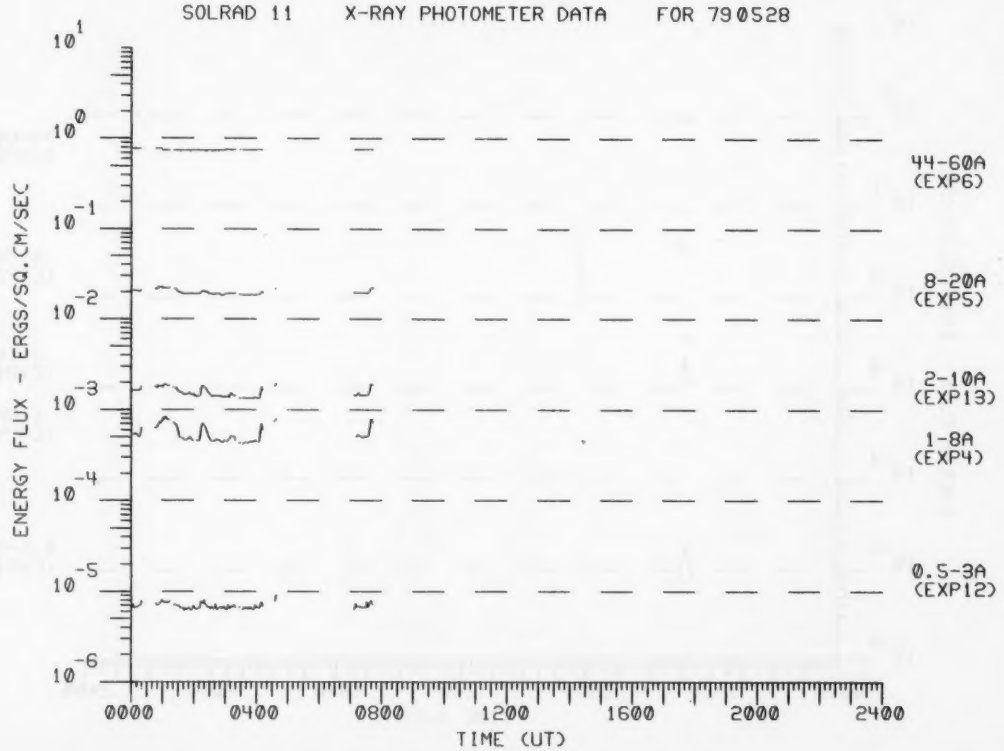

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790525
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

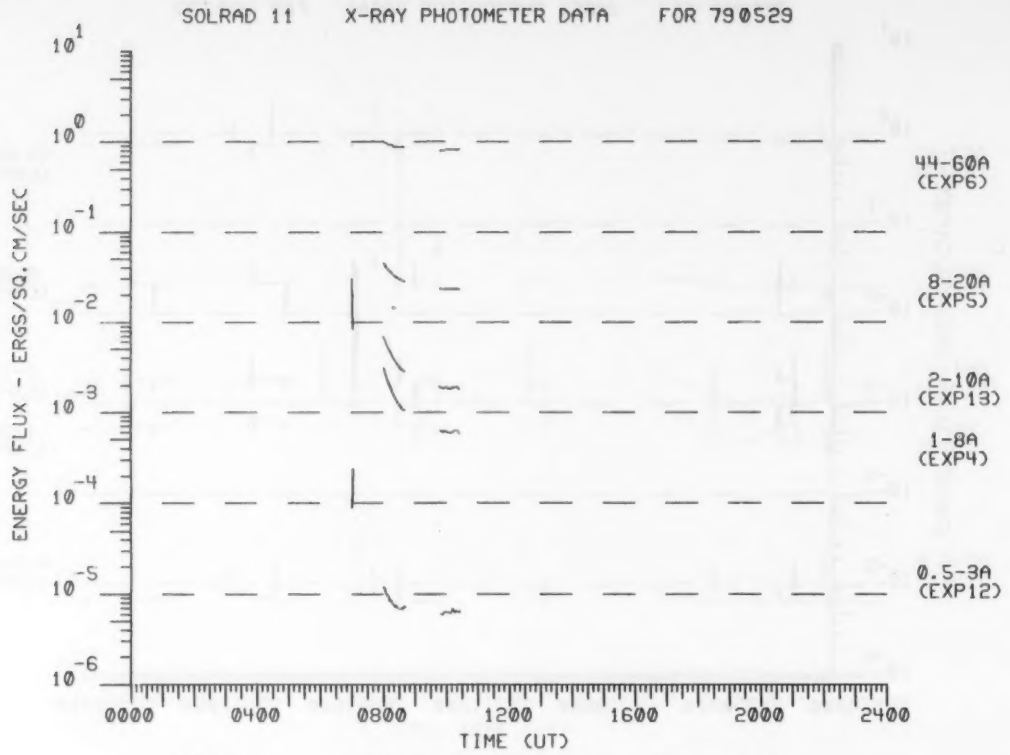

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790526
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

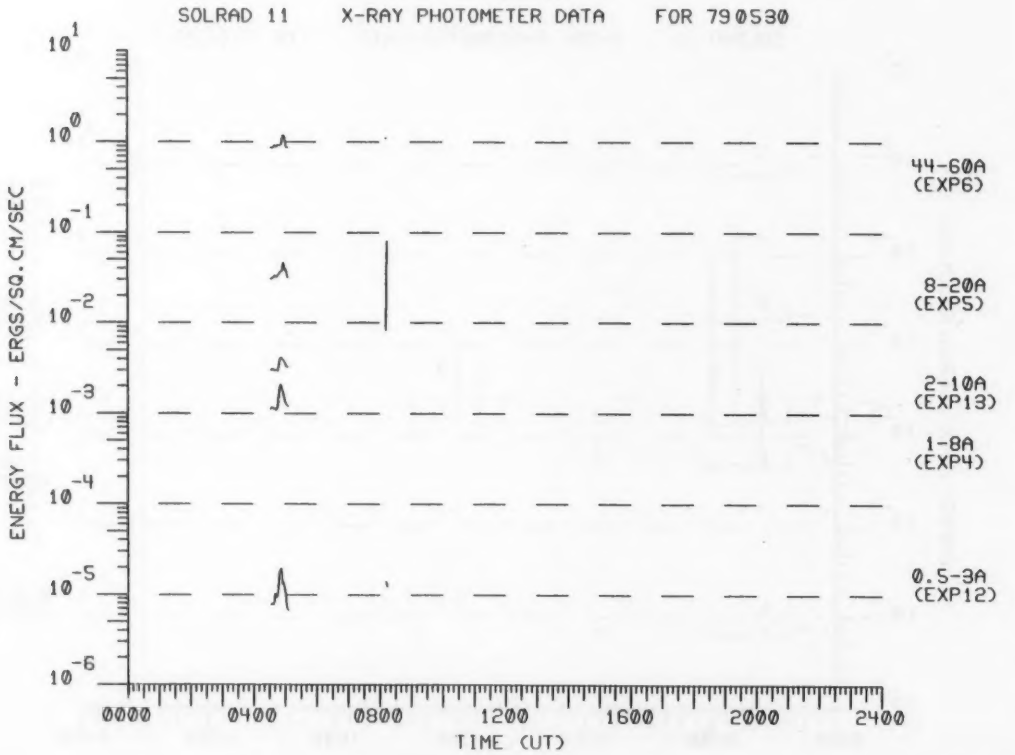
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790527

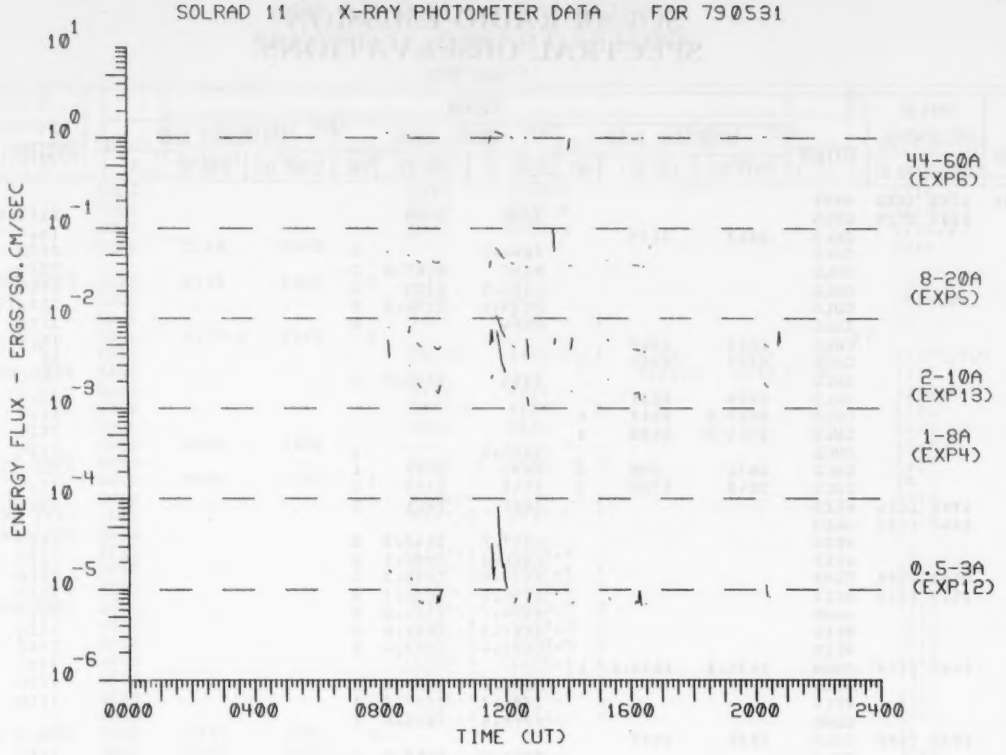


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790528




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790529
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790530
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790531
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
01	0000	1000	MANI										
	0000	0729	CULG				0012	0729					IIIN,W
			CULG	0017	0239								IN,W
			CULG				0046.5		1				IIIB
			CULG				0107	0107.5	2				IIIG
			CULG				0108.5	0109	1				IIIG
			CULG				0135.5	0136.5	2				IIIG,V
			CULG				0154		2				IIIB
			CULG	0239	0347								IS,W
			CULG	0347	0404	1							IS
			CULG				0356	0356.5	1				UNCLF
			CULG	0404	0631								IN,W
			CULG	0412.5	0413	1							IIIG
			CULG	0419.5	0420	1							IIIG
			CULG				0426.5		1				IIIB
			CULG	0631	0648	1	0639	0648	1				IS
			CULG	0648	0729	1	0648	0729	2				IS,C
	0752	1224	WEIS				0801	1211	2				IS,DC
	0846	1423	DWIN										
			WEIS				0847.7	0848.3	3				IIIG
			WEIS				0851.3	0852.1	2				IIIG
	0942	1900	SGMR				1438.9	1439.3	1				IIIG
	1535	1814	WEIS				1556.5	1556.7	2				IIIG
			SGMR				1556.7	1701.4	2				IIIS
			WEIS				1607.9	1608.6	2				IIIG
			WEIS				1622.4	1623.4	2				IIIG
	0449	1759	DURN	1631.1	1631.2	1							IIIG
			WEIS				1631.2	1631.6	2				IIIG
			WEIS				1701.7	1717.2	1				IIIGG
			SGMR				1818.8	1819.5	2				V
	2030	2400	CULG	2036	2400								IS,W
			CULG				2052.5	2053.5	1				IIIG
	2140	2400	MANI										
			CULG	2200	2200.5	2							IIIG,U
			CULG				2254						IIIB,W
02	0000	0729	CULG	0000	0332								IS,W
	0000	0106	MANI										
			CULG				0036.5		1				IIIB
			CULG				0041	0729					IIIN,W
	0112	0202	MANI										
	0226	1000	MANI										
			CULG	0332	0507	1	0400	0430	1				IS
			CULG	0433	0433.5	1							IIIG
	0448	1800	DURN				0448 E	1800 D	2				I,DC
			CULG	0507	0729								IS,W
	0452	1824	WEIS				0543	1631	2				IIIN
			DURN			2	0739.4	0739.4	2				IIIRS
	0855	1030	DWIN										
	1114	1426	DWIN										
	0942	1900	SGMR				1146.5	1146.7	1				V
			SGMR				1229.2	1229.6	2				V
			WEIS				1248.8	1250.2	2				IIIGG
			SGMR				1248.9	1250.0	2				IIIG
			SGMR				1324.4	1330.0	2				IIIG
			WEIS				1324.4	1326.1	2				IIIGG
			WEIS				1329.1	1329.8	3				IIIG
			SGMR				1452.1	1452.7	2				IIIG
			SGMR				1622.7	1631.5	1				IIIG
			WEIS				1655.3	1658.3	3				IIIG/V
			DURN	1655.5	1659.3	1							DCIM
			SGMR				1656.0	1657.5	3				V
			DURN	1656.6	1656.8	2	1656.6	1656.8	2				IIIG
			WEIS				1659.2	1730.0	3				IIH ARM
			SGMR				1700.2	1706.2	3				II
			SGMR				1706.1	1830.0	2				CONT
	2029	2400	CULG	2053	2157								IN,W
			CULG				2116	2117	2				IIIGG
	2131	2400	MANI										
			CULG	2157	2238	1							IS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
02			CULG				2209	2209.5					IIIG,W
			CULG				2235	2235.5					IIIG,W
			CULG				2237	2237.5					IIIG,W
			CULG	2238	2400								IS,W
03	0000	0729	CULG	0000	0304	1							IS
			CULG				0025	0029					IIIN,W
			CULG				0031	0215	1				IS
			CULG	0125.5	0215	1							IV
			CULG				0126.5	0132.5	3	0128	0132	2	IIIGG,V,U
	0000	1000	MANI							0128.3	0130.5	1	IIIG
			CULG				0132	0200					IIIN,W
			CULG				0137.5	0138	2				IIIG
			CULG				0215	0247					IS,W
			CULG	0304	0508								IS,W
	0447	1800	DURN				0447 E	1800 D	3				I,DC
			CULG	0508	0729	1							IS
			CULG				0624.5		1				IIIB
	0538	1802	WEIS				0827.5	0827.8	2				IIIG
	0840	1433	DWIN										
			WEIS				1133.5	1729.0	1				IN
			WEIS				1245.2	1246.4	1				IIIG
			WEIS				1355.3	1355.6	2				IIIG
	0941	1900	SGMR				1355.5	1403.3	2				IIIG
			WEIS				1402.9	1403.2	1				IIIG
			WEIS				1415.2	1415.4	2				IIIB
			WEIS				1454.9	1455.1	1				IIIG
			WEIS				1523.2	1523.3	1				IIIG
			WEIS				1525.4	1525.7	1				IIIG
			WEIS				1551.3	1551.4	1				IIIB
	2029	2400	CULG	2039	2054	1							IS
			CULG	2054	2230								IN,W
			CULG	2123	2123.5	1							IIIG
	2129	2400	MANI										
			CULG				2225.5						IIIB,W
			CULG	2230	2315	1							IS
			CULG	2235.5	2249	1	2237.5	2245.5	1				IIIS
			CULG				2241		2				IIIB
			CULG				2249	2400	1				IS
			CULG	2315	2400								IS,W
04			CULG	0000	0315								IS,W
	0000	0729	CULG				0003	0106	1				IS,DC
	0000	1003	MANI										
			CULG				0015	0252					IIIN,W
			CULG				0106	0216					IS,W
			CULG				0221.5	0255	3				II
			CULG	0315	0331	1							IS
			CULG	0331	0729								IN,W
	0446	0530	DURN										
			CULG				0552	0552.5	1				IIIB
			CULG				0557.5	0558	2				IIIG,U
			CULG				0638.5	0640					IIIG,W
	0712	1440	WEIS				0728.3	0728.5	2				IIIG
			WEIS				0823.2	0824.6	2				IIIG
			WEIS				0912.3	0914.9	2				IIIG
	0940	1257	DWIN										
			WEIS				0943.4	0944.3	1				IIIG
			WEIS				1134.2	1134.4	1				IIIB
			WEIS				1137.9	1309.5	1				IN
	1348	1428	DWIN										
	0938	1900	SGMR				1530.0	1531.3	1				IIIG
	1617	1806	WEIS										
	2029	2400	CULG	2036	2235	1	2049	2136	1				IS
			CULG				2123	2400					IIIN,W
			CULG	2133.5	2134.5	1							FAST DRIFT
			CULG				2136	2209	2				IS,DC
	2141	2400	MANI										
			CULG				2209	2313	1				IS
			CULG	2235	2400								IS,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
04			CULG				2238.5		1				IIIB
			CULG				2313	2400					IS,W
			CULG				2318	2319	2				IIIG
			CULG				2324	2325	2				IIIG
05			CULG	0000	0405								IS,W
	0000	0729	CULG				0000	0034					IIIN,W
	0000	1000	MANI										
			CULG				0008	0008.5	1				IIIB
			CULG				0009	0010	2				IIIG,U
			CULG				0057	0232					IS,W
			CULG	0146	0146.5								IIIG,W
			CULG	0214	0215	1							FAST DRIFT
			CULG				0232	0541	1				IS
			CULG				0321	0525					IIIN,W
			CULG	0348	0349	1							IIIG
			CULG	0405	0710	1							IS
			CULG	0639.5		1							IIIB,U
	0938	1900	SGMR										
	0446	1828	WEIS				1329.2	1329.4	1				IIIB
	2029	2400	CULG				2038	2055					IS,W
			CULG				2053.5						IIIB,W
			CULG	2053.5	2054	1							I
			CULG				2128		1				UNCLF
	2129	2400	MANI										
			CULG				2217.5	2218.5	1				IIIG
			CULG				2220	2400					IIIN,W
			CULG	2241	2400								IS,W
06	0000	0724	CULG	0000	0036								IS,W
	0000	1000	MANI										
			CULG				0012	0013					IIIG,W
			CULG	0036	0144								IN,W
			CULG				0112.5						IIIB,W
			CULG				0132	0154					IS,W
			CULG				0239	0240					IIIG,W
	0444	0838	WEIS										
	0857	1830	WEIS				1339.3	1339.4	1				IIIB
			WEIS				1543.1	1545.9	1				IIIG
	0937	1900	SGMR				1543.2-	1546.4	2				V
	2136	2400	MANI										
	2029	2400	CULG	2335	2336.5	2	2335.5	2337	2				IIIG,V,U
			CULG				2338.5		1				IIIB
			CULG	2338	2338.5	2							IIIG
			CULG	2340	2341	1							I
			CULG				2344.5	2345.5	1				I
07	0000	1000	MANI										
	0000	0728	CULG	0021	0030								IN,W
			CULG				0144.5						IIIB,W
			CULG				0219	0530					IS,W
			CULG	0304	0428								IN,W
			CULG	0428	0707								IS,W
	0715	1320	OWIN										
	0936	1900	SGMR										
	0440	1453	WEIS				0953.7	0954.0	1				IIIB
			WEIS				1013.7	1013.9	1				IIIB
			WEIS				1210.2	1210.5	2				IIIB
	1502	1813	WEIS										
	2140	2400	MANI										
	2029	2400	CULG				2323						IIIB,W
			CULG	2350	2356								IS,W
08	0000	1003	MANI										
	0000	0728	CULG	0047.5	0048.5	2							FAST DRIFT
			CULG				0108						IIIB,W
	0438	1808	WEIS				1443.5	1445.4	2				IIIGG
			WEIS				1448.9	1449.0	2				IIIB
			WEIS				1457.5	1457.6	1				IIIB
			WEIS				1515.9	1516.9	1				IIIB

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
08	0933	1900	SGMR				1751.7	1752.2	2				III
	2029	2400	CULG				2104		1				IIIB
	2135	2400	MANI										
09	0000	1000	MANI										
	0000	0728	CULG				0232	0237.5	2				IIIGG,U
			CULG				0233	0233.5	1				DP
			CULG	0234	0237								IIIGG,U,W
			CULG	0444									IIIB,W
	0436	0706	WEIS				0557.0	0558.2	1				IIIG
			CULG				0557	0558					IIIG,W
			CULG	0623.5		1							IIIB
			CULG				0707.5		1				UNCLF
	0711	1804	WEIS				0721.3	0730.0	2				IIIG
	0850	1425	DWIN										
			WEIS				1118.7	1119.3	3				IIIG
	0932	1900	SGMR				1118.8	1119.3	1				III
			WEIS				1137.1	1139.2	1				IIIG
			WEIS				1207.2	1207.4	2				IIIB
			WEIS				1223.9	1224.2	1				IIIB
			WEIS				1234.7	1235.0	2				IIIB
			SGMR				1234.9	1900.0D	2				IIIS
			WEIS				1237.7	1237.8	1				IIIB
			WEIS				1239.3	1240.7	1				IIIG
			WEIS				1244.1	1244.3	1				IIIB
			WEIS				1301.9	1302.4	2				IIIB
			WEIS				1326.3	1329.0	2				IIIG
			WEIS				1408.3	1408.8	1				IIIG
			WEIS				1415.7	1416.0	2				IIIB
			WEIS				1519.4	1519.7	2				IIIG
			WEIS				1551.3	1554.3	2				IIIG
			SGMR				1600.1	1600.6	2				V
			WEIS				1620.2	1623.1	2				IIIG
			WEIS				1624.8	1627.9	1				IIIB
			WEIS				1630.7	1631.1	2				IIIB
			WEIS				1634.4	1634.7	2				IIIG
			WEIS				1638.8	1638.9	1				IIIB
			WEIS				1645.8	1646.3	1				IIIG
			WEIS				1706.7	1707.5	2				IIIG
			WEIS				1718.9	1719.1	2				IIIG
			WEIS				1733.8	1734.1	1				IIIB
			WEIS				1736.4	1736.7	2				IIIG
	2028	2400	CULG				2052.5	2053					IIIG,W
	2133	2400	MANI										
			CULG	2202.5		1							IIIB
			CULG	2215.5	2216	2	2215.5	2216	2				IIIG
			CULG				2222						IIIB,W
			CULG	2242.5		1	2242	2242.5	2				IIIG
			CULG				2243		2				IIIB
			CULG				2245	2357					IIIN,W
			CULG				2247	2249.5	2				IIIG
			CULG				2301.5	2303	1				IIIGG
			CULG	2323.5	2324	1	2323.5	2324	1				IIIG
			CULG	2330	2331								I,W
10	0000	0728	CULG				0019.5	0020.5	2				IIIG
			CULG	0028.5	0029	2	0028.5	0029.5	2				IIIG
	0000	1000	MANI							0030.8	0031.1	1	III
			CULG				0030	0031	2	0030.5	0031.5	2	IIIG,V
			CULG				0031	0549					IIIN,W
			CULG	0108	0108.5	1	0108	0108.5	1				IIIG
			CULG	0109	0110	1	0109	0110	2				IIIG
			CULG	0112	0112.5	1	0112	0112.5	1				IIIG
			CULG				0126.5	0127	2	0126.5	0127	1	IIIG
			MANI							0133.2	0133.5	1	III
			CULG				0133	0134.5	3	0133	0134.5	1	IIIG,V
			CULG	0249.5	0251	2	0249.5	0251	1				IIIG
			CULG	0254	0254.5	1							IIIG
			CULG	0257.5									IIIB,W
			CULG	0317	0317.5								I,W

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10			CULG	0334.5	0336	2	0334.5	0336.5	2				IIIGG
			CULG				0421.5		3				IIIB
			CULG				0425.5		1				IIIB
			CULG	0439.5	0441	1	0439	0440	1				IIIG
			CULG	0511.5	0512	1	0511.5	0512	1				IIIG
			CULG				0514	0514.5	1				IIIG
			CULG				0527.5	0528	2				IIIG
	0432	1306	WEIS				0527.5	0528.1	2				IIIG
			WEIS				0627.9	0628.9	2				IIIG
			CULG	0628	0628.5	2	0628	0629	2				IIIG
	0840	0935	OWIN										
	0932	1900	SGHR										
	1017	1415	OWIN										
	1311	1820	WEIS				1542.5	1543.1	1				IIIG
			WEIS				1629.3	1629.6	1				IIIB
	2135	2400	MANI										
	2028	2400	CULG				2232	2233.5	1				IIIG
11	0000	1000	MANI										
	0000	0724	CULG	0001	0003.5	1							RS,FASTDRI
			CULG	0040.5	0043	1							FAST DRIFT
			CULG				0049	0050.5	1				DC
			CULG				0203		1				IIIB
			CULG				0454.5	0455	1				IIIG
			CULG	0522	0525		0500	0525					IIIN,W
			CULG				0651.5	0652	2				IIIG
	0458	1814	WEIS				0651.8	0652.2	2				IIIG
			CULG				0655.5	0656	1				IIIG
			WEIS				0655.8	0656.2	1				IIIG
			WEIS				0921.4	0925.4	1				IIIGG
			WEIS				1152.5	1152.7	1				IIIB
	0931	1900	SGHR				1152.5	1158.6	1				IIIG
			WEIS				1157.5	1158.3	1				IIIG
	0954	1243	OWIN	1203	1217	1							IN
	1327	1420	OWIN										
			WEIS				1532.7	1532.9	1				IIIG
	2030	2400	CULG										
	2130	2400	MANI										
			CULG				2254.5						IIIB,W
			CULG				2316	2316.5					IIIG,W
			CULG				2358	2359					IIIG,W
12	0000	0728	CULG				0045	0046.5	3				IIIGG,V
			CULG				0149	0150					IIIG,W
	0000	0955	MANI							0201.7	0204.9	1	IIIG
			CULG				0352.5						IIIB,W
			CULG				0417	0417.5	1				IIIG
	0454	0614	WEIS										
			CULG				0502	0507					IIIN,W
			CULG				0503		1				IIIB
			CULG				0545	0545.5					IIIG,W
			CULG				0650.5	0651					IIIG,W
			CULG				0651.5	0652	2				IIIG
			CULG				0655.5						IIIB,W
	0632	1816	WEIS				0726.6	0727.6	3				IIIG
			WEIS				0942.8	0943.7	2				IIIG
			WEIS				1058.2	1059.4	1				IIIG
			WEIS				1254.6	1255.9	3				IIIG
	0928	1900	SGHR				1254.8	1255.9	3				V
			WEIS				1257.3	1257.5	1				IIIG
			WEIS				1333.8	1334.6	2				IIIG
			SGHR				1334.0	1334.5	2				V
			WEIS				1643.9	1644.4	2				IIIG
			WEIS				1721.7	1722.4	2				IIIG
	2130	2400	MANI										
	2028	2400	CULG				2151.5	2152	1				IIIG
13	0000	0957	MANI										
	0000	0728	CULG				0304	0304.5					IIIG,W
			CULG				0623.5	0624					IIIG,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13	0452	1310	WEIS				0623.8	0624.2	1				IIIG
	0928	1900	SGMR										
	1317	1818	WEIS				1403.6	1405.8	1				IIIG
			WEIS				1639.1	1644.1	1				IIIG
	2028	2400	CULG				2058	2059.5	1				IIIG
	2130	2400	MANI										
			CULG				2211.5						IIIB,W
			CULG				2235.5	2236					IIIG,W
14	0000	0958	MANI										
	0000	0728	CULG				0005	0008	3	0006	0007	2	IIIGG
			CULG				0009.5	0010	1				IIIG
			CULG				0015.5	0016	2				IIIG
			CULG				0239.5	0240	1				IIIB
			CULG				0422		1				IIIB
			CULG				0424	0424.5	2				IIIG
			CULG				0435.5	0436	1				IIIG
			CULG				0529.5						IIIB,W
	0448	1818	WEIS				0726.2	0726.7	2				IIIG
			WEIS				0834.4	0835.0	1				IIIG
			WEIS				0916.4	0916.8	2				U
			WEIS				0931.8	0932.0	1				IIIB
			WEIS				1136.1	1136.6	2				IIIG
			WEIS				1207.3	1208.8	2				IIIG
	0928	1900	SGMR				1207.4	1207.9	1				IIIG
			WEIS				1419.8	1420.7	2				IIIG
			SGMR				1429.8	1430.4	3				V
			WEIS				1504.2	1504.4	1				IIIB
			WEIS				1511.7	1511.9	1				IIIB
	0928	1900	SGMR				1606.3	1607.0	1				V
	2029	2400	CULG				2053	2400					IS,W
	2130	2400	MANI										
			CULG				2139		1				IIIB
			CULG				2248.5	2251	1				IIIGG
			CULG				2255	2258.5	1				IIIGG
15	0000	0520	CULG				0000	0254					IS,W
	0000	0955	MANI										
			CULG				0050						IIIB,W
			CULG				0215	0216	1				IIIG
			CULG				0301	0302	1				IIIG
			CULG				0319.5						IIIB,W
			CULG				0358						IIIB,W
	0441	0531	WEIS				0502.3	0503.5	2				IIIG
			CULG				0502.5	0503	1				IIIG
	0649	1818	WEIS				0737.6	0738.0	1				IIIG
			WEIS				0753.7	0753.9	2				IIIG
			WEIS				0914.0	0914.6	1				IIIG
	0927	1900	SGMR										
	1236	1428	DWIN										
			WEIS				1243.4	1249.7	2				IIIB
			WEIS				1450.3	1451.4	1				IIIG
			WEIS				1611.0	1615.8	1				IIIG
	2130	2400	MANI										
	2152	2400	CULG										
16	0000	1002	MANI										
	0000	0713	CULG				0408		1				IIIB
	0440	0639	WEIS										
	0824	1406	DWIN										
	0926	1900	SGMR										
	0658	1811	WEIS				1358.0	1358.5	2				IIIG
			WEIS				1416.7	1416.9	2				IIIG
			WEIS				1804.4	1804.8	2				U
	2130	2400	MANI										
	2029	2400	CULG				2200.5	2201					UNCLF,W
			CULG				2318	2318.5					IIIB,W
			CULG				2326			2326			IIIB,W
			CULG				2348	2348.5					UNCLF,W
			CULG				2349.5	2350					IIIB,W

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17	0000	0958	MANI										
	0000	0728	CULG				0030.5	0033.5					IIIG,W
			CULG				0236	0241	1				IIIGG
			CULG				0238	0238.5	2	0238	0238.5	1	IIIG
			CULG				0340	0340.5	1				IIIG
			CULG				0428.5						IIIB,W
			CULG				0439.5						IIIB,W
			CULG				0558.5	0601	2				IIIG,V
	0825	1223	DWIN	1044.5	1045.5	1							IIIG
	0741	1748	WEIS				1048.3	1049.8	1				IIIG
	0926	2200	SGMR				1049.4	1050.1	2			I II	
			WEIS				1232.3	1232.7	2				IIIB
			SGMR				1232.4	1232.8	2				V
	1756	1814	WEIS										
	2028	2400	CULG				2337.5	2340.5	3	2338.5	2339	1	IIIG,V
	2141	2400	MANI							2338.6	2339.7	1	III
			CULG				2341.5	2342.5					IIIG,W
18	0000	0950	MANI										
	0000	0728	CULG				0620.5	0625	1				IIIS
	0420	1816	WEIS				0620.8	0625.6	2				IIIGG
			CULG				0622.5	0623	3				IIIG
	0924	2200	SGMR										
	2120	2400	CULG										
	2129	2400	MANI										
19	0000	0955	MANI										
	0000	0728	CULG				0250.5		1				IIIB
			CULG				0254.5		2				IIIB
	0419	0953	WEIS				0922.3	0922.4	1				IIIB
	0923	2200	SGMR										
			WEIS				0935.2	0935.8	2				IIIG
	1007	1817	WEIS				1244.8	1245.2	1				IIIG
			WEIS				1251.6	1251.8	1				IIIB
			WEIS				1516.9	1517.7	1				IIIG
			WEIS				1714.2	1717.7	2				IIIG
	2127	2400	MANI										
	2028	2400	CULG				2234.5						IIIB,W
			CULG				2351						IIIB,W
20	0000	0955	MANI										
	0000	0728	CULG				0109.5						IIIB,W
			CULG				0116						IIIB,W
			CULG				0120.5						IIIB,W
			CULG				0220	0220.5	1				IIIG
			CULG				0221.5	0222.5	2				IIIG
	0418	1559	WEIS				0504.5	0505.6	1				IIIG
			WEIS				0630.1	0630.7	2				IIIG
			WEIS				0642.8	0643.3	2				IIIB
			CULG				0643		1				IIIB
			WEIS				0819.0	0819.3	1				IIIB
			WEIS				0821.5	0822.0	1				IIIG
			WEIS				0829.4	0830.6	1				IIIG
	0922	2200	SGMR										
			WEIS				0936.3	0940.3	2				IIIGG,U
			WEIS				0943.6	0944.1	1				IIIB
			WEIS				0956.0	0956.2	1				IIIB
			WEIS				1109.5	1534.4	2				IIIN
			SGMR				1111.5	1115.0	2				IIIG
			SGMR				1115.0	1407.5	1				CONT
			SGMR				1154.4	1154.7	1				IIIG
			SGMR				1315.6	1315.9	2				IIIG
			SGMR				1634.7	1635.8	2				V
			SGMR				1744.0	1746.3	1				IIIG
	2028	2400	CULG				2258	2258.5					IIIG,W
			CULG				2322	2322.5	1				IIIG
			CULG				2325	2325.5	3	2325	2325.5	1	IIIG
			CULG				2337.5	2338.5					IIIG,W
	2124	2400	MANI							2341.7	2343.7	1	IIIG
			CULG				2341	2349	3	2341	2346	2	IIIGG,V

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SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
21	0000	0700	CULG				0000	0538					IIIN,W
			CULG				0001.5	0002.5	1				IIIG
			CULG				0004	0004.5	1				IIIG
			CULG				0008	0008.5	2				IIIB
			CULG				0016.5	0019	2				IIIGG
			CULG				0038	0040.5		0040.5	0041		IIIG,W
			CULG				0145.5	0148.5	2	0146	0148	1	IIIGG,V
	0000	0956	MANI							0146.7	0147.0	1	III
			CULG				0310.5	0314.5	1				IIIGG,U
			CULG				0347	0348	1	0347	0347.5	1	IIIG
			CULG				0420	0420.5	2	0420.5		1	IIIG
			CULG				0431	0431.5	3	0431	0431.5	1	IIIB,V
			CULG				0434.5	0435	1				IIIG
			CULG				0508.5	0511.5	1				IIIGG
			CULG				0530	0532.5	2				IIIGG,V
			CULG				0538	0554	1				IIIN
	0554	1820	WEIS				0642.4	0642.7	1				IIIG
			CULG				0642.5	0643	1				IIIG
	0709	0728	CULG										
			WEIS				0825.4	0830.6	1				IIIG
			WEIS				0852.2	0852.3	1				IIIB
			WEIS				0926.3	0926.4	2				IIIB
			WEIS				0948.6	0948.7	1				IIIB
			WEIS				1009.4	1011.5	2				IIIG
			WEIS				1049.5	1051.6	2				IIIG
			WEIS				1220.0	1225.1	2				IIIG
	0921	2200	SGMR				1224.5	1225.1	2				IIIG
			WEIS				1239.4	1241.9	2				IIIB
			WEIS				1349.2	1349.4	1				IIIB
			WEIS				1406.7	1407.0	1				IIIG
			WEIS				1447.3	1449.5	2				IIIG
			SGMR				1448.9	1449.2	2				V
			SGMR				1520.0	1521.1	2				IIIG
			WEIS				1520.3	1521.0	2				IIIG
			WEIS				1537.1	1537.3	2				U
	2028	2400	CULG										
	2126	2400	MANI										
22	0000	0953	MANI										
	0000	0728	CULG										
	0416	1122	WEIS				0843.7	0843.9	1				IIIB
			WEIS				0907.3	0908.6	2				IIIG
			WEIS				0931.4	0933.3	2				IIIG
			WEIS				0935.6	0936.3	2				IIIG,HARM
			WEIS				1002.0	1002.6	1				IIIG
	0921	2200	SGMR				1025.9	1026.1	2				III
	1214	1820	WEIS				1226.6	1227.2	2				IIIG
	2029	2400	CULG										
	2127	2400	MANI										
23	0000	0950	MANI										
	0000	0728	CULG				0110.5	0111.5					IIIG,W
			CULG				0153.5						IIIB,W
			CULG				0155.5						IIIB,W
			CULG				0408						IIIB,W
			CULG				0415	0416	1				IIIG
	0416	1432	WEIS				0418.8	0420.6	3				IIIG
			CULG				0419.5	0420.5	2				IIIG
			WEIS				0450.1	0450.3	1				IIIG
			CULG				0450	0450.5					IIIG,W
			WEIS				0514.3	0514.6	1				IIIG
			CULG				0514.5						IIIB,W
			CULG				0519.5						IIIB,W
			WEIS				0519.8	0519.9	1				IIIB
			WEIS				0537.3	0538.1	2				IIIG
			CULG				0537	0538	1				IIIGG
			WEIS				0656.3	0656.4	2				IIIB
			WEIS				0702.7	0703.2	2				IIIB
			CULG				0703						IIIB,W
			WEIS				1026.8	1027.7	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
23			WEIS				1058.0	1059.2	2				IIIG
	0920	2200	SGMR				1249.8	1250.1	2				III
			WEIS				1356.5	1356.6	1				IIIB
			WEIS	1406.0	1406.7	1							IIIG
	1502	1732	WEIS				1706.3	1712.6	2				IIIG
	1800	1821	WEIS										
	2127	2400	MANI										
	2028	2400	CULG				2205.5						IIIB,W
			CULG				2223						IIIB,W
			CULG				2225.5						IIIB,W
			CULG				2356	2357	1				IIIG
24	0000	0729	CULG				0023	0654					IIIN,W
			CULG				0116		1				IIIB
			CULG				0123	0440					IS,W
			CULG				0210	0211	1				IIIG
	0000	0950	MANI							0227.9	0228.2	1	III
			CULG				0228	0229	3	0228	0228.5	2	IIIG
			CULG				0259	0308	1				IIIN
			CULG				0344	0345	1				IIIG
			CULG				0348	0350	2	0348	0349	2	IIIG
	0416	1822	WEIS				0417.8	1404.0	2				IN
			CULG				0440	0616	1				IS
			WEIS				0514.0	1803.0	1				I IIN
			CULG				0515		1				IIIB
	0918	2200	SGMR										
			WEIS				1300.8	1301.2	2				U
	2029	2400	CULG				2123	2207					IIIN,W
	2130	2400	MANI										
25	0000	0953	MANI										
	0000	0729	CULG				0019	0019.5	1	0019	0019.5	1	IIIG
			CULG				0051	0052.5	2				IIIG
			CULG				0056	0240					IIIN,W
			CULG				0253	0301					IS,W
			CULG				0414.5	0415.5	2				IIIG
	0415	0935	WEIS				0510.0	0510.1	1				IIIB
	0942	1823	WEIS				0514.0	1514.8	2				I IIG
			CULG				0514	0514.5	2				IIIB,V
			CULG				0634	0652	1				IS
			WEIS				0645.0	1622.0	1				IIIN
	0918	2200	SGMR										
			WEIS				1723.1	1724.5	2				IIIGU
	2028	2400	CULG				2129	2400					IIIN,W
	2130	2400	MANI										
			CULG				2137	2138	1				IIIG
			CULG				2206.5		1				IIIB
			CULG				2208.5	2210	3				IIIG,V
			CULG				2242		1				IIIB
			CULG				2318	2320	2	2319	2320	1	IIIG
			CULG				2345	2345.5	1				IIIG
26	0000	0224	MANI										
	0000	0717	CULG				0001.5						IIIB,W
			CULG				0214	0229	1				IIIS
			CULG				0227	0227.5	2				IIIG
			CULG				0258.5	0259	1				IIIG
	0259	0950	MANI										
			CULG				0302.5	0304	2				IIIG,V
			CULG				0307.5	0310	1				IIIGG
			CULG				0413	0516					IIIN,W
	0414	1501	WEIS				0441.0	1737.0	2				IIIN
			CULG				0603.5	0604	1				IIIG
			CULG				0619	0619.5	2				IIIB
			CULG				0654.5	0655					IIIB,W
			WEIS				0707.9	0708.4	2				IIIG
			CULG				0708		1				IIIB
			WEIS				0745.8	0747.2	2				IIIGG
			WEIS				1010.4	1010.7	2				IIIG,U
			WEIS				1206.6	1208.8	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26	0917	2200	SGMR				1206.9	1209.0	2				IIIG
			SGMR				1241.7	1244.6	1				IIIG
			WEIS				1242.7	1245.3	3				IIIGG
	1648	1824	WEIS										
			SGMR				1735.3	1737.9	1				V
	2129	2400	MANI										
	2029	2400	CULG				2129	2308					IIIN,W
27	0000	0537	MANI										
	0000	0729	CULG				0001		1				IIIB
			CULG				0027		2				IIIB
			CULG				0100	0647					IIIN,W
			CULG				0122.5	0127	2				IIIGG
			CULG				0251	0252	1				IIIG
			CULG				0421		2				IIIB
	0413	1825	WEIS				0443.0	1803.0	1				IIIN
			CULG				0509		1				IIIB
			CULG				0512.5	0513.5	2				IIIG
	0700	0957	MANI										
	0917	2200	SGMR										
	2029	2400	CULG				2251	2252	1				IIIG
28	0000	0729	CULG				0010.5	0011					IIIG,W
	0018	0957	MANI										
			CULG				0128						IIIB,W
	0412	0809	WEIS				0439	1819	2				IIIN
			CULG				0459						IIIB,W
			CULG				0517	0519					UNCLF,W
			CULG				0547.5	0548.5	1				IIIG
			CULG				0621		2				IIIB
			CULG				0622	0622.5					IIIG,W
			CULG				0624						IIIB,W
			CULG				0636	0636.5					IIIG,W
			CULG				0638.5	0640	2				IIIG
	0816	1826	WEIS				0940.8	0942.6	2				IIIGG
			WEIS				1523.6	1528.5	3				IIIGG
	1446	2200	SGMR				1523.7	1525.8	2				IIIG
			SGMR				1818.2	1839.1	2				IIIS
	2029	2400	CULG				2056	2056.5	1				IIIG
			CULG				2058	2058.5					IIIG,W
			CULG				2113	2114					IIIG,W
	2130	2400	MANI										
			CULG				2152	2152.5					UNCLF,W
			CULG				2153	2153.5	1				IIIG
			CULG				2207.5						IIIB,W
			CULG				2221	2240					IIIS,W
			CULG				2343	2346	1				IIIG
			CULG				2353	2353.5	1	2353	2353.5	1	IIIG
29	0000	9555	MANI										
	0000	0729	CULG				0014.5		1				IIIB
			CULG				0015	0729					IIIN,W
			CULG				0326.5		1				UNCLF
			CULG				0356.5		2	0356.5		1	IIIB
			CULG				0405		1	0405		1	IIIB
			CULG				0406	0407.5	2	0406.5	0407	1	IIIGG
			CULG				0514.5	0515	1				IIIG
	0411	1357	WEIS				0514	1803	3				IIIN
			CULG				0546.5		1				IIIB
	0915	1020	SGMR										
	1403	1827	WEIS										
	1225	2200	SGMR				1408.8	1409.2	2				IIIG
			SGMR				1416.6	1416.8	2				IIIG
			SGMR				1442.8	1454.8	2				IIIG
			SGMR				1711.9	1803.1	2				IIIS
			SGMR				1915.7	1922.8	1				IIIG
			SGMR				1947.1	1947.6	2				IIIG
			SGMR				1956.3	2008.4	3				IIIG
			SGMR				2024.0	2024.3	1				IIIG
	2030	2400	CULG				2105	2200					IIIS,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MAY 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			SGMR				2110.0	2112.9	2				IIIG
			CULG				2111	2200	1				IIIN
			SGMR				2125.9	2130.1	3				IIIG
			CULG				2126	2128	3				IIIGG
			CULG				2129.5	2130	3				IIIG
	2130	2400	MANI										
			CULG				2232	2232.5	1				IIIG
			CULG				2354.5		2	2354.5		1	IIIB
30	0000	0955	MANI										
	0000	0729	CULG				0024	0024.5	1				IIIG
			CULG				0041	0042	1				IIIG
			CULG				0117						IIIB,W
			CULG				0122						UNCLF,W
			CULG				0358						IIIB,W
	0411	1828	WEIS				0424	1343	2				IIIN
			CULG				0644		1				IIIB
			CULG				0645	0647	1				IIIG
	0915	2200	SGMR				1306.2	1306.9	1				V
			SGMR				1338.9	1339.0	2				III
	2130	2400	MANI										
	2030	2400	CULG				2140	2400	1				N,RS,DP
			CULG				2328.5	2329	1				I IIB,DP
31	0000	0729	CULG				0000	0630					N,RS,DP,W
			CULG				0009	0009.5	2	0009	0009.5	1	I IIG
			CULG				0017		1	0017		1	IIIB
			CULG				0019	0236					I IIN,W
			CULG				0040	0044	1				IIIGG
			CULG				0122		1				IIIB
			CULG				0132.5	0133	1				IIIG
			CULG				0143.5		1	0143.5		1	IIIB
			CULG				0236	0249	1				IIIS
			CULG				0249	0729					IIIN,W
	0000	0955	MANI							0336.2	0336.7	1	III
			CULG				0336	0337	3	0336	0336.5	2	IIIGG
			CULG				0400	0400.5	1	0400	0400.5	1	IIIG
			CULG				0401.5	0403	2	0401.5	0402	1	IIIG
	0410	0516	WEIS				0417	1732	3				IIIN
			CULG				0422.5	0423	2	0422.5	0423	1	IIIG
			CULG				0437.5	0438	2				IIIG
			CULG				0458	0458.5	2	0458	0458.5	1	IIIG
			CULG				0500.5	0501	2				IIIG
			CULG				0508.5	0511	2	0509.5	0510	1	IIIGG
			MANI							0509.7	0509.9	1	III
			CULG				0612.5		1				IIIB
			CULG				0617		1				IIIB
			CULG				0712	0715.5	2				IIIGG
	0914	2200	SGMR				1150.4	1152.1	1				IIIG
			SGMR				1152.1	2200.00	1				CONT
	0530	1830	WEIS				1802	1825	1				IS
	2030	2400	CULG				2058	2400	1				IS,C
			CULG				2111	2248	1				IIIS
			CULG				2112	2400	1				N,RS,DP
	2130	2400	MANI										
			CULG				2248	2400					IIIS,W
			CULG				2255	2400	1				SCINTILLAT

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

May 1979	THULE Average cts/hr	ALERT Average cts/hr	DEEP RIVER Average cts/hr	CALGARY Average cts/hr	KIEL Average cts/hr	CLIMAX Average cts/hr	TOKYO Average cts/hr	KULA Average cts/hr	HUANCAYO Average cts/hr
1	4246.8		6608.8		5960.9	3955.3	3599.6		
2	4278.3		6650.3		6022.5	3986.4(30)	3618.1		
3	4301.7		6686.0		6041.0		3627.3		
4	4338.1		6720.7		6065.4	4026.6	3643.1		
5	4351.9		6781.3		6081.8	4059.3	3657.0		
6	4314.5		6718.2		6034.0	4008.8	3638.2		
7	4315.0		6692.8		6027.8	4002.5	3630.3		
8	4337.3		6696.8		6033.0	4015.8	3621.3		
9	4329.8		6674.6		6023.7	4022.3	3611.0		
10	4316.6		6653.5		5984.1	3984.1	3596.3		
11	4289.4		6635.5		5973.5	3971.0	3590.2		
12	4304.0		6630.3		5958.3	3961.0	3595.1		
13	4312.1		6655.0		5964.9	3973.0	3603.2		
14	4300.0		6657.3		5960.8	3963.8	3599.8		
15	4290.7		6618.2		5951.5	3935.3	3580.3		
16	4294.4		6611.4		5959.4	3926.5	3576.0		
17	4286.2		6616.6		5954.4	3933.2	3585.5		
18	4281.5		6624.6		5949.1	3924.1	3588.0		
19	4261.7		6562.1		5914.3	3917.3	3582.1		
20	4235.9		6526.8		5880.8	3888.1	3569.8		
21	4212.8		6488.4		5832.5	3858.4	3557.5		
22	4181.0		6446.0		5802.9	3829.8	3551.9		
23	4165.8		6412.5		5779.8	3798.4	3536.0		
24	4158.8		6418.7		5800.3	3811.3	3534.5		
25	4158.9		6436.8		5815.4	3816.2	3540.5		
26	4174.8		6461.8		5827.1	3844.4	3555.4		
27	4200.3		6475.7		5832.9	3850.4	3566.0		
28	4194.7		6470.0		5831.0	3852.5	3565.7		
29	4186.9		6476.7		5806.8	3845.2	3560.2		
30	4145.3		6402.3		5766.4	3781.3	3559.0		
31	4150.1		6379.4		5764.2	3792.9	3555.3		
MEAN	4255.3		6577.1		5922.6	3916.8	3586.9		

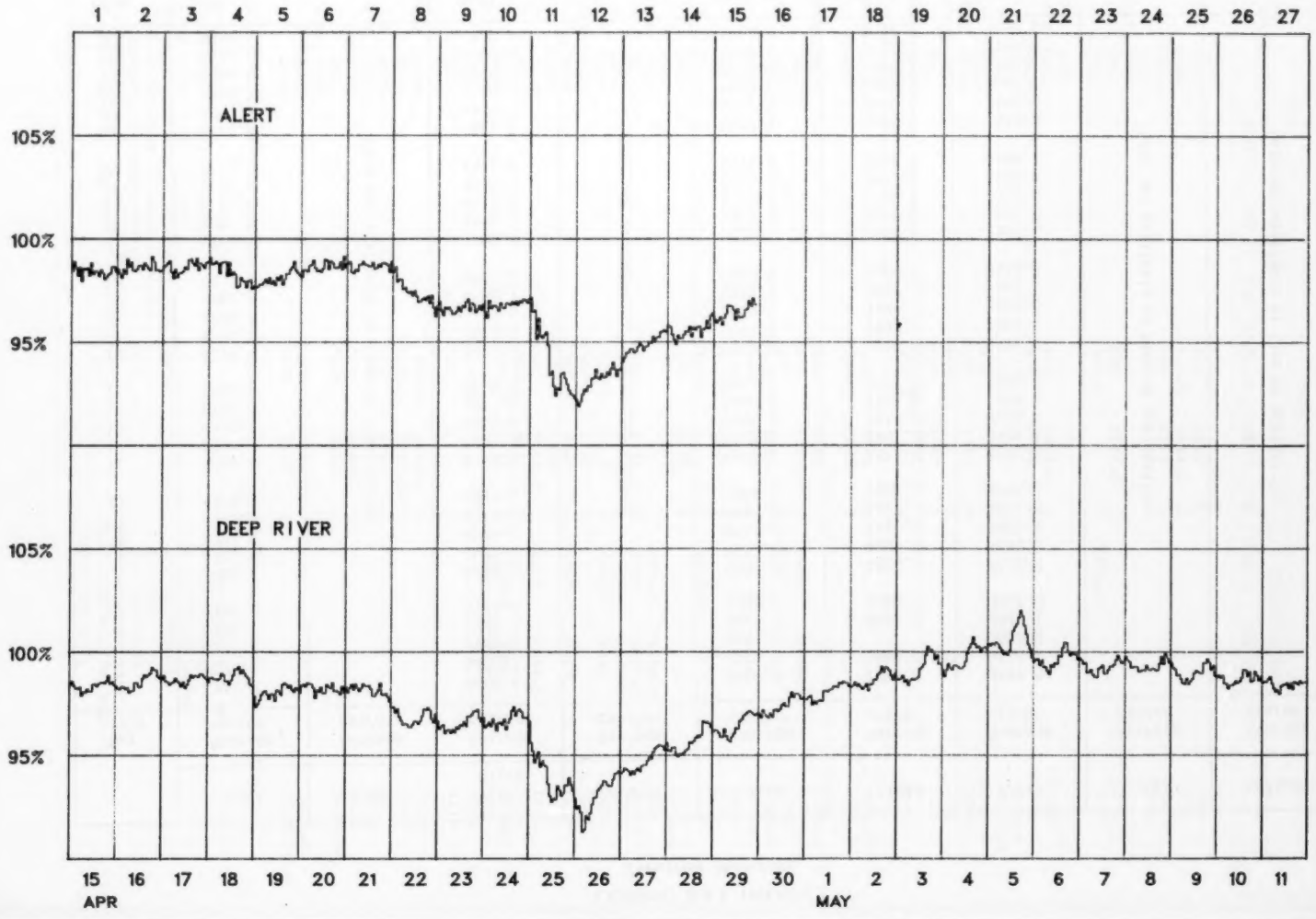
Data not available at time of publication.

( ) is the number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Scaling Factors: 100 for Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula; 300 for Deep River; 256 for Tokyo.

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 1992 (April 1979–May 1979)

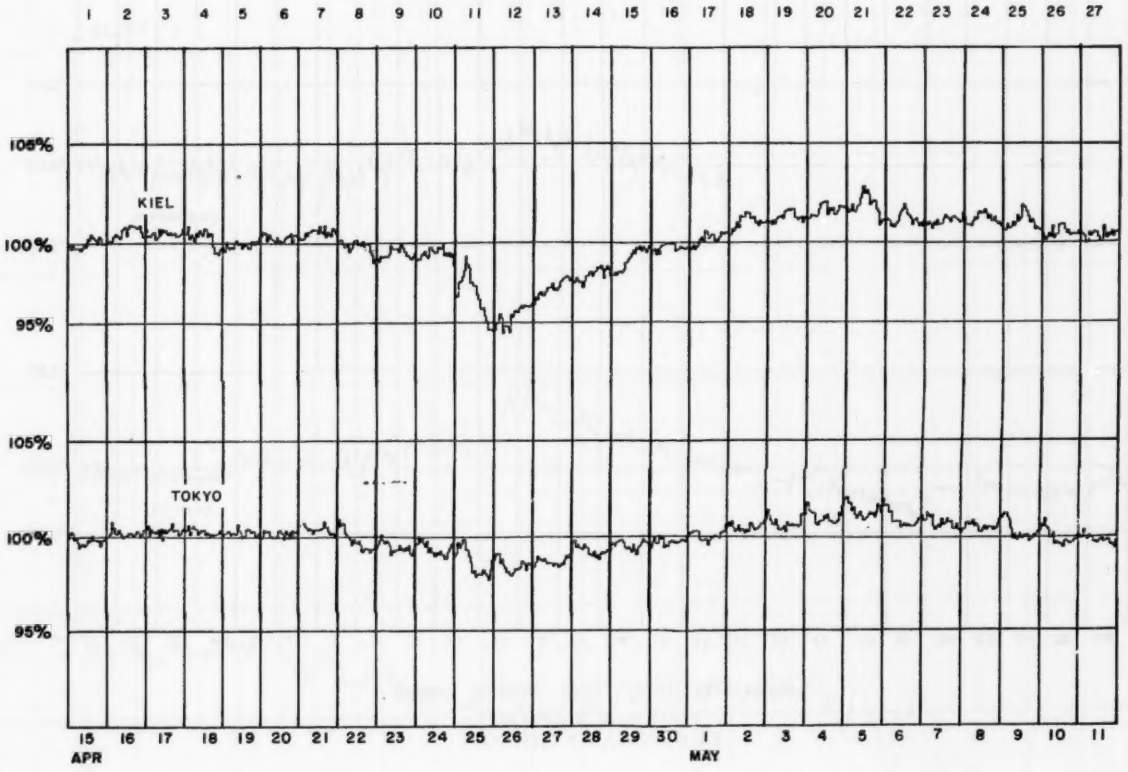


15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11

APR MAY

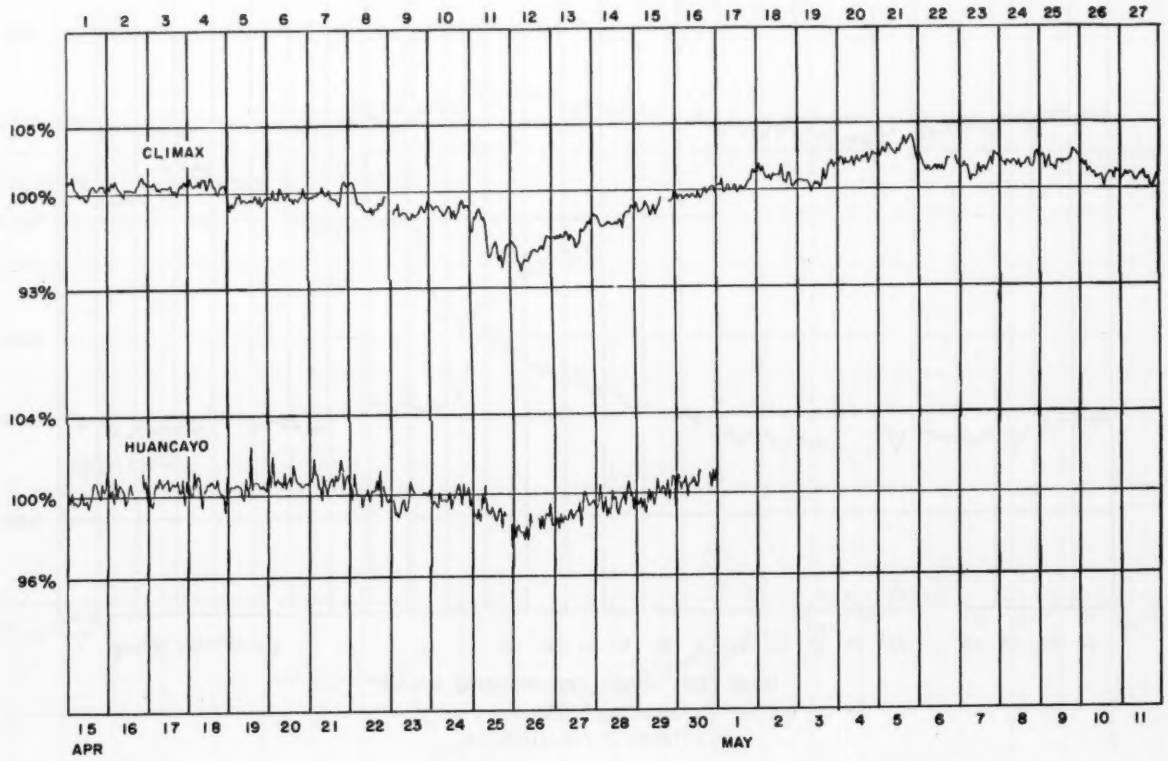
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotations 1992 (April - May 1979)



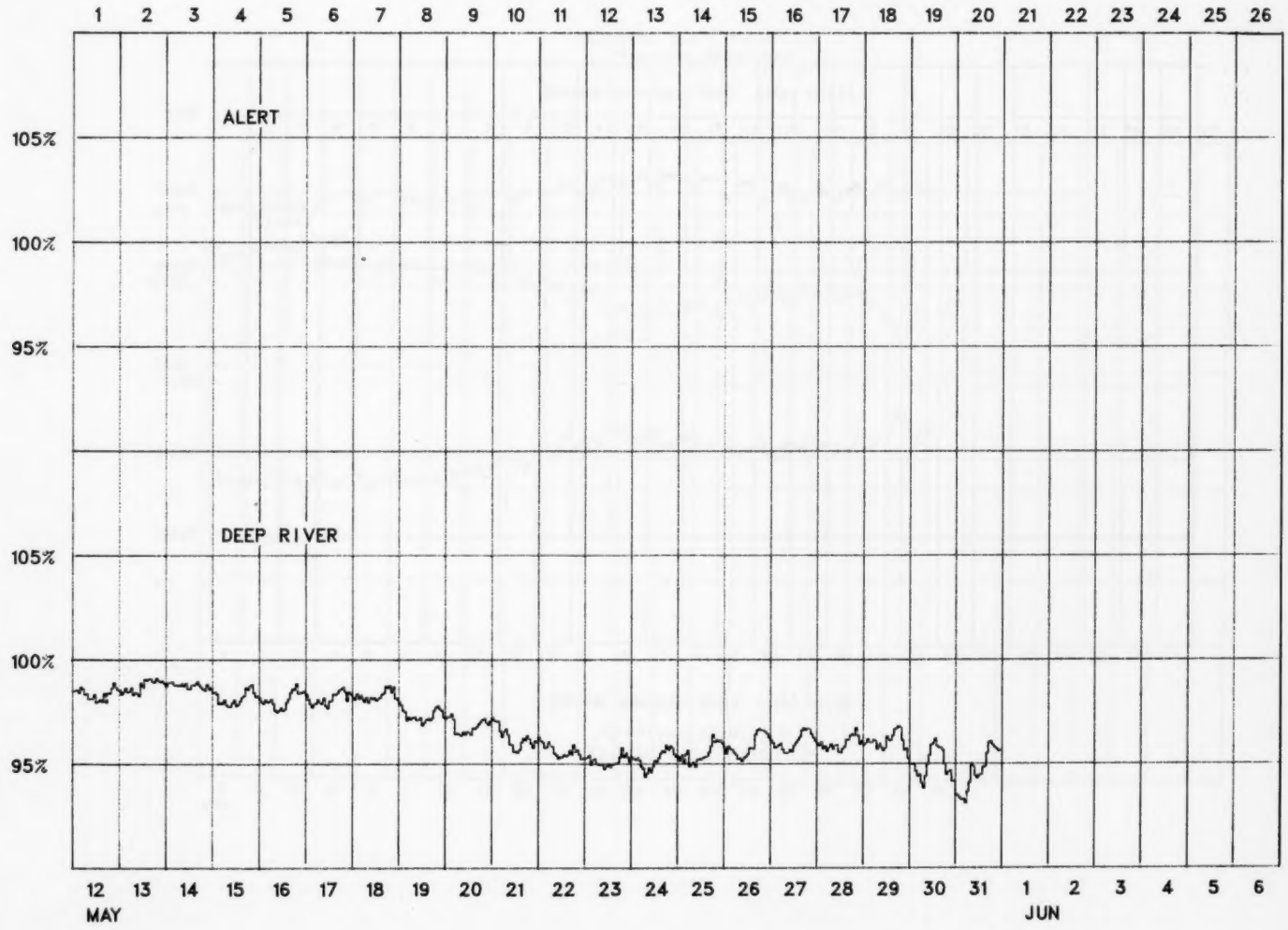
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1992 (April - May 1979)



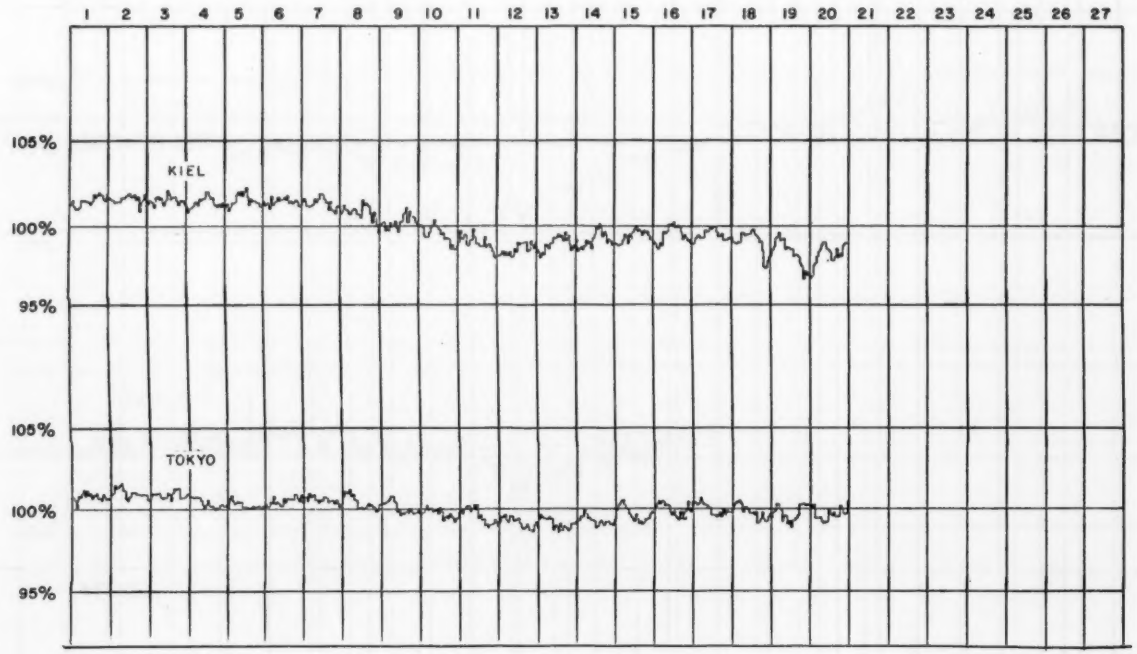
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 1993 (May 1979–June 1979)



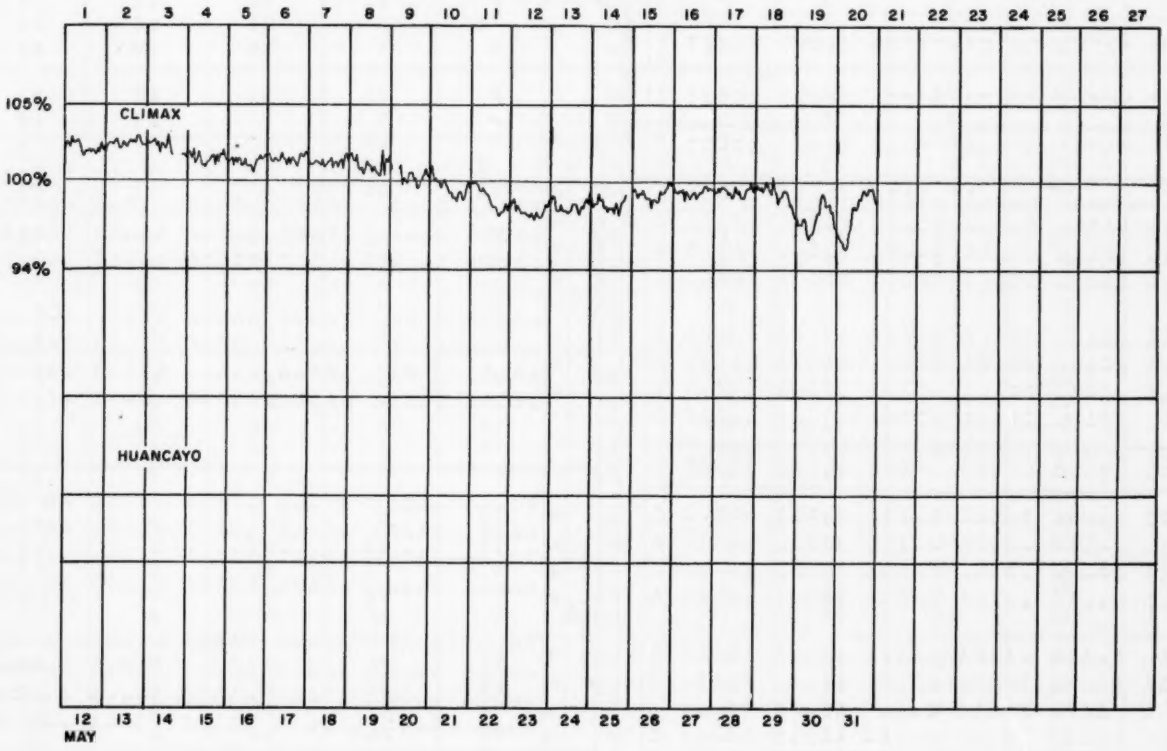
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1993 (May 1979)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1993 (May 1979)



GEOMAGNETIC ACTIVITY INDICES

MAY 1979

Day		Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa * *					Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M			
1		3+	4+	3+	3+	1+	3-	3	4	25+	3+	4	3	3	1+	2-	3-	3+	18	32	20	31	22		1.0
2		5-	4-	3-	2+	2+	3-	2	1	21+	4-	3+	3-	2+	2	2+	3-	1	14	22	17	24	15		0.8
3	Q5	2+	2-	1-	1+	2	2-	2	2	14-	2+	2-	1-	1+	2-	1+	2-	2	6	12	6	7	11	CC	0.3
4	Q7A	2+	1	1-	1+	1	2-	3	2+	13+	2+	1-	0+	1+	1	1+	3-	3	7	16	7	8	15	CC	0.3
5	Q8A	2	2	1+	2	1+	3-	2	1+	15-	2	2-	2-	2+	2-	2	2-	1	7	13	12	13	13	CC	0.3
6	Q3	1+	1	2-	1+	2	2	1	2	12+	1-	1	2-	2-	2-	2-	1-	2-	6	13	6	9	10	CC	0.3
7		2	1+	1+	3	4-	3-	3	2	19	2-	1-	1+	3-	3+	3-	3-	2	11	20	16	11	25		0.6
8	Q9A	1	2+	3	2-	2	2	1+	2	15+	1-	2-	3-	2-	2-	2-	1+	2	8	16	9	14	11	C	0.4
9		1	2+	3-	3+	3+	3	4	2+	22	1	2+	3-	3	3	3-	3+	2	14	25	20	17	28		0.8
10	Q6A	2-	1	1	1+	2	3	2	2-	14-	1	1-	1	1	2	3-	2	2-	7	14	11	8	17	C	0.3
11		3-	2+	4+	3	4	4	3	3+	27-	2+	2+	4	3-	3+	3	2+	3	19	34	23	27	31		1.0
12		2+	2+	2-	3-	3	2+	2	2	18+	2+	2+	2-	3-	2+	2-	2	2-	9	19	10	13	16		0.5
13	Q0A	2	2	2+	2-	2+	3-	2	1+	16+	2-	2-	2+	2-	2-	2	2-	1+	8	16	9	11	14	C	0.4
14		2	2+	2	2+	4-	3+	2+	2	20	2	2+	2-	2	3	3-	2	2	11	23	12	13	23		0.6
15		2+	2+	3-	2+	3+	3	2+	2+	21-	2+	3-	3-	2+	3-	2+	2	2+	11	20	14	15	20		0.6
16	Q2	2	2+	2	1-	0+	1-	2	1+	11+	2	2	2+	1	1+	0+	1+	1	5	15	7	13	9	CK	0.2
17	Q1	2-	1	1+	1-	1-	0+	1-	0	6+	1+	1+	1+	1-	0+	0	0+	0+	3	8	2	5	5	CC	0.1
18		2-	1-	1-	1+	2+	2+	4+	4-	17	1+	1-	1-	1+	2+	2	3	3+	11	20	9	6	24		0.6
19	Q5	5-	4	3-	4-	4	3+	4-	4-	30-	4-	4-	3	3+	4-	3+	3	3+	24	33	34	31	36		1.1
20		3-	4	3-	2+	2+	2+	2+	3	22-	2+	4-	3	2+	2+	2+	2+	3	13	24	15	21	19		0.7
21		1-	1-	3-	2	4-	3-	4	3+	20-	1	1-	2+	2-	3+	2+	4-	3	13	21	24	12	33		0.7
22	D1	4+	4-	4-	5-	3+	5	5+	5	35	4+	4-	4-	4	3-	4	4	4+	35	56	34	33	57		1.4
23		3+	3	1	1	1-	1-	4-	3+	17-	3	3-	2-	1	1-	1-	3	3-	11	20	11	14	16		0.6
24	D3	4-	3+	4-	4	4	3+	4+	5	31+	3	3	4+	3+	4-	3	3+	4-	27	38	35	34	39		1.2
25	D2	4+	5+	4	3+	4+	5-	5	4-	35-	4-	4+	3+	3+	3+	4	4	3+	34	62	40	44	58		1.4
26	D4	5-	4+	3+	3+	4	5-	3	3	30+	4	4	3+	3-	4-	4-	3-	3-	25	43	32	38	38		1.2
27		3	4-	4-	3+	3+	3-	3	3-	25+	3	3	3+	3	3-	3-	3-	2+	17	30	26	28	29		0.9
28		3	2	2-	0+	2	3	4	2+	16+	3-	2-	1+	1-	2-	2+	3	2+	11	28	11	10	29		0.6
29		2	1	1+	2-	2-	2+	6-	7	23-	2-	1	1+	2-	2	2	5-	6-	30	52	18	9	61		1.3
30		3+	4-	3	2-	2-	2-	1	1-	17-	3+	4-	3	2-	1+	1+	1-	1-	10	16	18	27	8		0.6
31	Q4	0+	1	0+	2+	2-	2	3-	1-	11	0+	1-	1	3-	2-	2-	2-	0+	6	14	6	7	13	CC	0.3
																		Mean	14	25.0	16.6	20.9			0.68

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	3	4	3	3+	2-	3-	3-	3+	4-	4-	3	3	1-	1	2+	4-
2	4	3	3	2+	2	2+	3-	1+	3+	3+	3-	2+	2-	3-	3-	1
3	2+	1+	1-	1+	2	2-	2	2	3-	2	1-	1	2-	1-	1+	2
4	2	1-	1-	1+	1	2-	3-	3-	2+	1-	0+	1+	1-	1-	3-	3
5	2	2-	2-	2	2-	3-	2	1+	2	2-	2-	3-	1+	1+	1+	1-
6	1	1	2-	2-	2+	2	1+	2	0+	1	1+	1+	1+	1	0+	1
7	2	1	1+	3	4-	3-	3-	2+	1+	1-	1+	2+	3	2	3-	2-
8	1-	2-	3	2	2+	2+	2-	2+	0+	2-	3-	2-	1	1	1	2-
9	1+	3-	3	3+	3	3	3+	2+	1-	2	2+	3	3	2	3+	2
10	1+	1	1+	2-	2	3	3-	2	1	1-	1	1	2-	2	1+	1+
11	2+	2+	4+	3-	4-	3+	3-	3+	2	2	4-	2+	3	3-	2	3-
12	2+	2+	2-	3	3-	2+	2+	2	3-	2+	2-	2	2	1+	1+	1+
13	2	2-	2+	2	2+	3-	2	2-	1+	1+	2	1	1+	2-	1+	1
14	2	2+	2	2	3+	3	2+	2	2-	2	2-	2	2+	2-	1+	2
15	2+	3-	3-	2+	3	2+	2+	3-	2	3-	3-	2	2+	2+	2-	2
16	2-	2	2+	1+	1-	1-	2-	1+	2+	2	2	1-	0+	0+	1-	1-
17	1+	1+	1+	1-	1-	0+	1-	0+	1+	1	1+	1-	0+	0	0+	0
18	1+	1-	1	2-	3-	2+	3+	3+	1+	1-	0+	1	1+	1+	2+	3
19	4	4-	3	4-	4-	4-	3	4-	4-	4-	3	3+	3+	3	3-	4-
20	2+	4-	3	3-	3-	3-	3-	3-	3-	4	3-	2	2+	2	2-	3
21	1	1	3-	2	3+	2+	3+	3	1	0+	2+	1+	3+	2+	4	3+
22	4+	3+	4-	4	3	4	4	4	5-	4	4-	4	2+	4	4+	4+
23	3+	3	2-	1+	1	1	3-	3	3	3-	2-	1-	1-	0	3+	3-
24	3	3	4	3+	4-	3	3+	4-	3	3	4+	4-	4-	3+	3	4-
25	4-	4+	3+	3	3+	4	4-	3+	4-	4+	4-	4-	3+	4	4+	4-
26	4	4-	3+	3	4-	4	3-	3-	4	4	4-	3-	4-	4-	3-	3-
27	3-	3	3	3	3	3-	3-	2+	3+	3+	3+	3	3-	3-	3-	2
28	3-	2-	2-	1-	2	3-	3+	3-	3-	2-	1+	0+	2-	2-	3-	2
29	2	1+	1+	2-	2	3-	5+	6+	2-	1	1	2	2	1+	4-	4+
30	4-	4-	3	2+	2	2	1	1-	3	4-	3-	1	1	1-	1-	1-
31	0+	1	1+	3	2+	2+	2	1-	0	1-	0+	2	1-	0+	1+	0

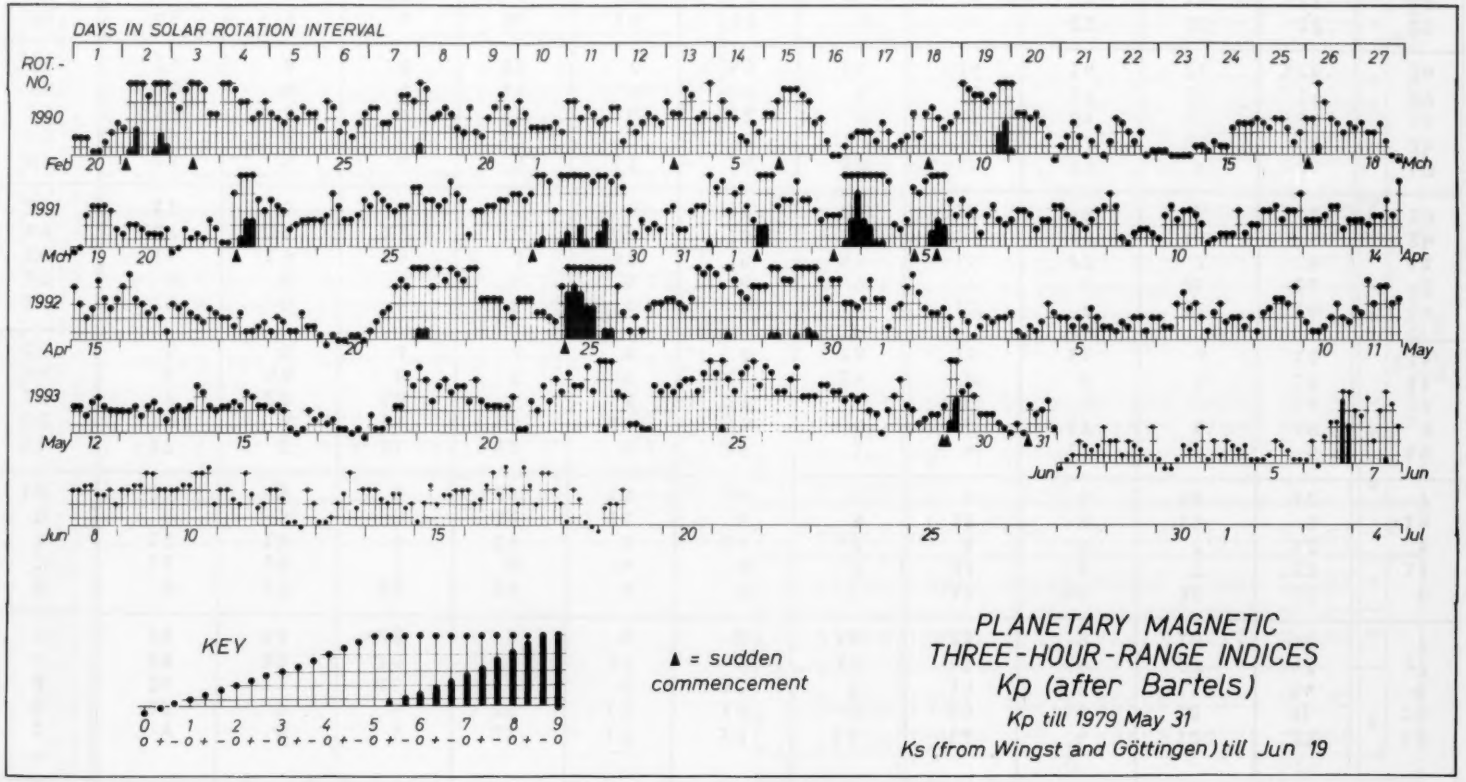
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) are prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤ 6 but one Kp≥ 3o or two Kp values ≥ 3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Kn, Ks and Km as in *IAGA-Bulletin No. 32* and indices aa ("antipodal") as in *IAGA-Bulletin No. 33* are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 1200 UT.

DAILY AVERAGE INDICES Ap

	1978							1979				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	9	6	4	21	13	13	11	10	6	12	33	18
2	82	5	4	20	12	10	3	19	10	20	36	14
3	31	11	16	11	8	12	5	19	9	13	54	6
4	26	80	30	8	17	5	12	45	19	27	47	7
5	38	53	22	7	8	6	10	23	9	13	52	7
6	8	13	16	14	4	2	5	18	16	30	12	6
7	11	14	7	6	4	9	2	32	6	7	12	11
8	10	14	6	24	5	14	3	8	9	7	12	8
9	4	8	5	31	11	8	3	15	9	15	9	14
10	24	10	6	12	15	16	1	4	6	54	12	7
11	17	6	11	12	5	10	1	4	12	18	6	19
12	10	4	21	13	14	53	4	10	17	6	15	9
13	7	20	13	6	8	22	7	5	3	7	11	8
14	4	48	6	5	5	11	28	8	2	3	15	11
15	6	6	3	3	5	8	28	15	11	8	18	11
16	6	6	4	6	4	6	14	12	7	11	16	5
17	9	6	9	8	5	6	9	7	5	21	11	3
18	11	18	24	3	32	5	48	11	22	7	6	11
19	17	11	11	2	22	13	24	19	15	11	6	24
20	11	5	3	5	9	22	26	12	6	6	2	13
21	33	6	6	9	13	16	12	11	59	4	21	13
22	15	8	6	12	10	28	19	14	33	45	45	36
23	18	8	4	11	6	12	7	27	31	12	23	11
24	19	6	4	10	5	18	6	23	17	15	14	27
25	24	8	9	36	7	60	21	34	14	21	126	34
26	46	5	4	36	18	33	8	28	22	26	12	25
27	15	4	29	51	23	17	14	23	24	18	27	17
28	12	6	124	50	14	5	14	13	17	39	31	11
29	32	4	40	109	16	4	20	13		68	47	30
30	31	3	31	11	25	5	27	16		16	26	10
31		2	45		20		18	13		19		6
MEAN	20	13	17	18	12	15	13	16	15	19	25	14

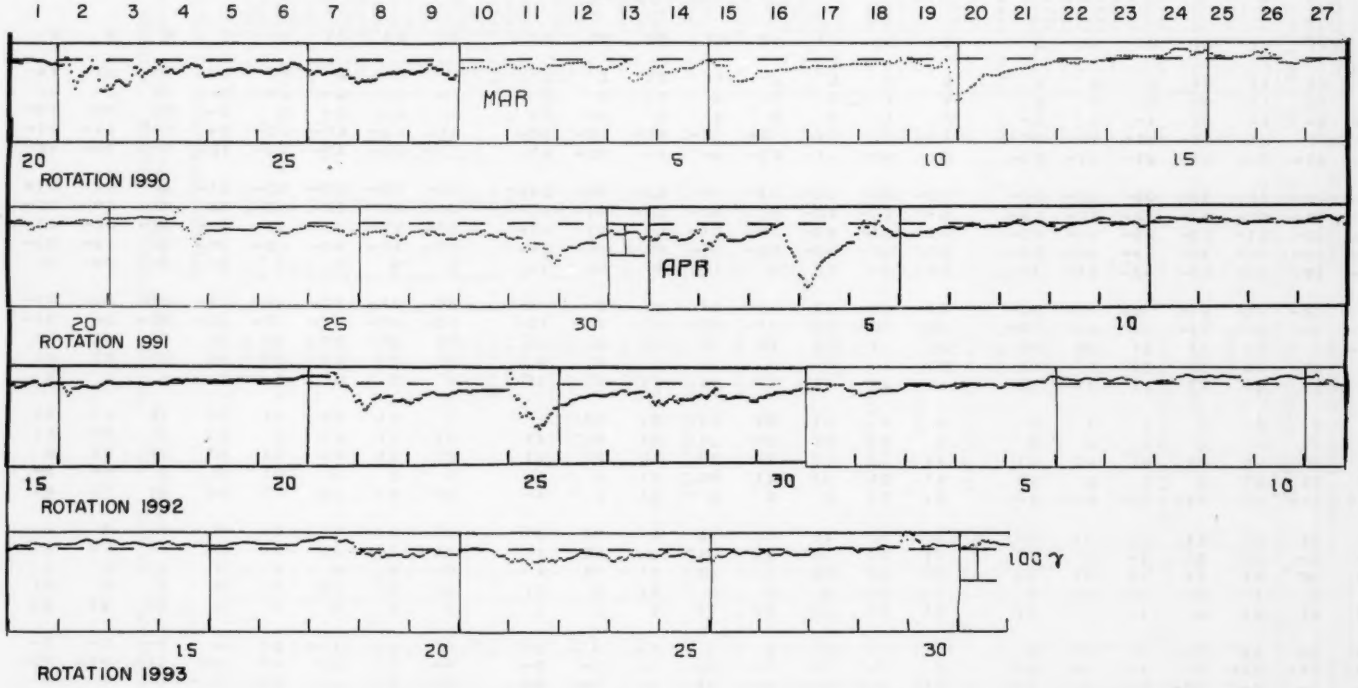
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

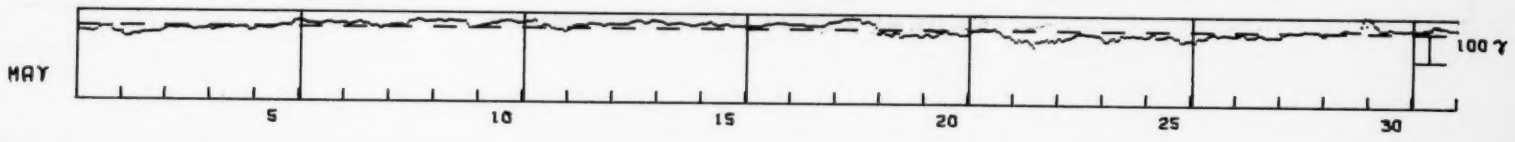
MAY 1979

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT)

(Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-18	-15	-16	-18	-21	-22	-22	-26	-24	-18	-16	-9	-5	-4	-3	-7	-9	-9	-19	-24	-24	-27	-26	-27
2	-35	-40	-37	-40	-35	-30	-29	-32	-32	-30	-25	-23	-26	-24	-23	-22	-23	-20	-21	-21	-21	-18	-15	-11
3	-8	-6	-9	-10	-10	-7	-8	-5	-6	-6	-7	-10	-11	-12	-15	-15	-11	-9	-10	-11	-7	-9	-6	-8
4	-16	-14	-11	-9	-8	-8	-6	-4	-4	-4	-6	-5	-3	-4	-3	-2	-5	-4	-4	-5	-15	-13	-14	-10
5	-2	-3	-6	-7	-7	-11	-7	-6	-6	-4	-1	2	3	3	5	5	4	5	5	12	18	21	21	19
6	17	14	12	9	9	9	7	7	7	5	8	11	12	16	15	13	12	9	7	8	10	13	13	12
7	12	6	5	8	12	13	15	17	15	8	10	9	6	0	-3	-1	4	-2	-5	-4	1	2	1	3
8	7	7	7	8	9	9	5	0	4	12	19	20	21	22	26	23	20	18	15	17	19	20	18	19
9	18	23	22	20	15	16	20	23	21	23	17	16	15	20	16	16	16	5	-4	-5	-4	-2	-1	3
10	5	6	9	9	11	11	14	14	13	14	17	21	22	21	24	20	22	18	15	16	12	15	15	15
11	17	21	18	16	21	27	19	-2	-6	3	10	9	5	2	-5	-2	-9	-10	-10	-10	-9	-15	-14	-7
12	-4	-2	5	6	10	6	7	8	7	7	14	16	14	14	10	11	11	7	4	8	12	13	11	10
13	9	12	12	10	12	12	13	12	16	20	22	23	26	23	21	18	13	15	18	22	25	26	22	20
14	19	20	17	13	9	10	13	15	15	14	17	17	14	12	10	9	8	8	6	7	9	12	14	15
15	15	11	17	21	17	12	10	6	7	11	12	12	13	10	3	4	6	6	5	7	4	5	6	5
16	6	7	4	4	6	8	8	6	11	13	13	15	14	16	17	19	17	16	14	13	14	13	11	12
17	13	13	13	14	13	12	11	8	6	8	9	7	7	6	7	10	11	11	15	20	23	22	24	25
18	25	26	29	32	35	33	32	36	36	35	33	31	31	19	17	23	26	26	17	13	13	2	-16	-18
19	-10	-7	-20	-17	-21	-26	-19	-12	-11	-16	-29	-26	-18	-21	-20	-20	-20	-16	-16	-13	-27	-24	-24	-18
20	-13	-18	-23	-27	-28	-21	-18	-12	-10	-8	-4	-9	-14	-15	-12	-12	-14	-16	-21	-19	-16	-21	-16	-11
21	-7	-3	-1	-4	0	3	4	5	-1	-3	0	-1	0	1	-5	-8	-11	-18	-24	-20	-20	-24	-30	-33
22	-42	-41	-31	-39	-37	-34	-31	-39	-47	-50	-50	-39	-38	-41	-35	-33	-33	-28	-40	-34	-32	-42	-33	-25
23	-29	-36	-32	-27	-28	-25	-22	-18	-15	-11	-9	-12	-13	-14	-15	-16	-16	-16	-16	-13	-19	-20	-24	-31
24	-38	-40	-38	-29	-26	-23	-36	-30	-25	-16	-20	-24	-16	-21	-21	-15	-18	-21	-21	-20	-20	-24	-26	-19
25	-19	-13	-9	-13	-26	-25	-26	-21	-19	-22	-15	-14	-19	-22	-27	-26	-29	-39	-40	-41	-32	-33	-33	-30
26	-39	-40	-26	-21	-28	-26	-23	-21	-14	-12	-8	-9	-13	-19	-14	-12	-13	-11	-12	-15	-15	-19	-18	-14
27	-12	-11	-5	-9	-15	-22	-21	-16	-21	-22	-14	-10	-11	-13	-17	-21	-22	-20	-19	-21	-19	-21	-20	-16
28	-11	-6	-3	-1	0	-1	-2	-3	-3	-4	1	2	5	1	-1	3	-1	0	-1	-1	-3	-8	-13	-12
29	-6	-2	-1	-5	-7	-5	-2	-1	4	8	11	7	4	2	1	4	2	2	2	24	41	53	23	51
30	41	37	26	20	14	5	8	7	7	7	13	11	7	5	6	8	9	9	8	10	11	10	7	5
31	3	4	5	6	8	12	12	10	13	15	25	23	20	21	15	20	17	14	12	10	10	10	9	9



PRINCIPAL MAGNETIC STORMS

MAY 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HYB	07.6N	5	0850	SC	- .2	+ 6		05(4) 07(2,6)	3	4	114	33	07	23
HUA	00.6S	9	1240	..	..	..	..	09(6)	5	6	191	26	09	23
HUA	00.6S	11	1110	..	..	..	..	11(5,6,7)	5	6	215	20	11	24
NEW	55.1N	16	1810	..	..	..	..	19(5) 20(2,3) 22(1,4)	5	30	172	213	23	08
IRK	41.3N	18	06--	..	..	..	..	19(4)	5	22	116	48	20	12
JAI	17.3N	18	1800	..	..	..	..		-	9	72	28	19	23
UJJ	13.5N	18	1800	..	..	..	..		-	6	70	27	19	23
ABG	09.5N	18	1800	..	..	..	..	19(4)	5	7	76	32	19	23
HYB	07.6N	18	0100	..	..	..	..	19(4)	4	8	182	26	20	23
ANN	01.5N	18	1800	..	..	..	..		-	7	111	42	19	23
HUA	00.6S	18	1812	..	..	..	..	19(5,6)	5	9	211	24	19	23
TRD	01.1S	18	1800	..	..	..	..		-	6	120	81	19	23
KGL	56.5S	19	1651	SC*	-10	- 7	- 2	19(8)	5	--	--	--	20	12
COL	64.6N	21	08--	..	..	..	..	21(3,5) 22(1,3,4)	5	111	860	430	23	06
SIT	60.0N	21	08--	..	..	..	..	22(4)	6	50	540	550	23	05
FRD	49.6N	21	08--	..	..	..	..	22(1)	5	22	147	75	28	04
IRK	41.0N	21	21--	..	..	..	..	21(7) 22(4)	5	22	120	62	23	06
JAI	17.3N	21	1800	..	..	..	..		-	9	79	30	23	02
UJJ	13.5N	21	1800	..	..	..	..		-	8	94	27	23	02
ABG	09.5N	21	1800	..	..	..	..	21(7) 22(3,4,6,7) 23(1)	4	7	90	35	23	02
HYB	07.6N	21	1200	..	..	..	..	22(4)	5	7	136	26	23	05
GUA	04.3N	21	1832	..	..	..	..	22(2)	5	10	150	20	23	05
ANN	01.5N	21	1800	..	..	..	..		-	5	159	54	23	02
TRD	01.1S	21	1800	..	..	..	..		-	5	190	92	23	02
PMG	18.6S	21	19--	..	..	..	..	22(3,4) 24(3) 25(2)	5	5	150	60	27	16
HUA	00.6S	22	1110	..	..	..	..	22(5,6)	5	7	250	35	23	05
COL	64.6N	23	19--	..	..	..	..	25(4,6)	6	173	1180	620	28	02
NEW	55.1N	23	19--	..	..	..	..	24(3,8) 25(1,2,6) 26(3)	5	34	161	187	26	10
HYB	07.6N	23	1800	..	..	..	..	24(4) 25(6,7) 26(2,5)	4	9	120	44	26	23
HER	33.7S	23	2000	..	..	..	..	25(2)	5	26	83	77	28	03
TOO	46.7S	23	20--	..	..	..	..	25(6)	5	18	110	50	26	21
SIT	60.0N	24	02--	..	..	..	..	24(3)	6	50	570	510	27	15
IRK	41.0N	24	20--	..	..	..	..	24(3,4) 25(2,4,6)	5	20	126	56	27	18
KGL	56.5S	24	2028	SC*	- 3	- 8	+ 1	24(8) 25(1)	5	--	--	--	25	08
NEW	55.1N	29	1850	SC*	7	13	--	29(8)	6	26	251	58	30	18
WIT	54.2N	29	1851	SC	- 3	+93		29(8)	7	15	265	40	30	02
FRD	49.6N	29	1850	SC*	+ 2	+53	- 7	29(7,8)	7	18	312	70	31	15
IRK	41.0N	29	1851	SC	- 4.4	51	7	29(8)	5	22	143	38	30	12
SJG	29.9N	29	1851	SC	- .5	+26	+ 8	29(8)	6	5	105	42	30	08
HON	21.1N	29	1850	SC	5	7	3	29(2)	6	2	128	49	30	09
JAI	17.3N	29	1850	SC	- 1.2	35	- 8		-	9	125	48	30	16
UJJ	13.5N	29	1850	SC	- .6	37	- 9		-	8	121	41	30	16
ABG	09.5N	29	1850	SC	- .7	31	- 6	29(8)	6	7	124	55	30	16
HYB	07.6N	29	1851	SC	- .5	+31	- 1	29(7,8)	6	8	120	36	30	20
HYB	07.6N	29	2059	SC	- .5	+83	- 3		-	--	--	--	30	20
GUA	04.0N	29	1851	SC	--	+15	- 5	29(8)	6	10	120	50	30	14
ANN	01.5N	29	1850	SC	- 1.1	35	19		-	8	120	100	30	16
HUA	00.6S	29	1850	SC*	2	105	10	29(8)	6	6	206	37	30	03
TRD	01.1S	29	1850	SC	--	--	--		-	--	--	--	30	16
PMG	18.6S	29	1850	SC*	+ .3	+17	+15	29(7,8)	6	7	120	80	30	16
HER	33.7S	29	1851	SC	+ 2	+22	+18	29(8)	5	12	83	49	30	15
KGL	56.5S	29	1851	SC	--	+13	--	29(8)	4	--	--	--	31	00

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO HYDERABAD IRKUTSK JAIPUR KERGUELEN NEWPORT PORT MORESBY SAN JUAN SITKA TOOLANGI TRIVANDRUM UJJAIN WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

MAY 1979

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-News nr. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc).

29 1851: A: DOB ESK WNG WIT DOU VIC FUR OTT AQU EBR COI TOL FRD QUE MPO;
B: NGK HAD MMB CZT KGL DUM;
C: HAZ KNY (pi 2/3/4: A: MMB)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

06 2335 - 2356 KAK HAZ

28 1820 - 1958 TOL

Very unusual events

none

RADIO PROPAGATION QUALITY INDICES

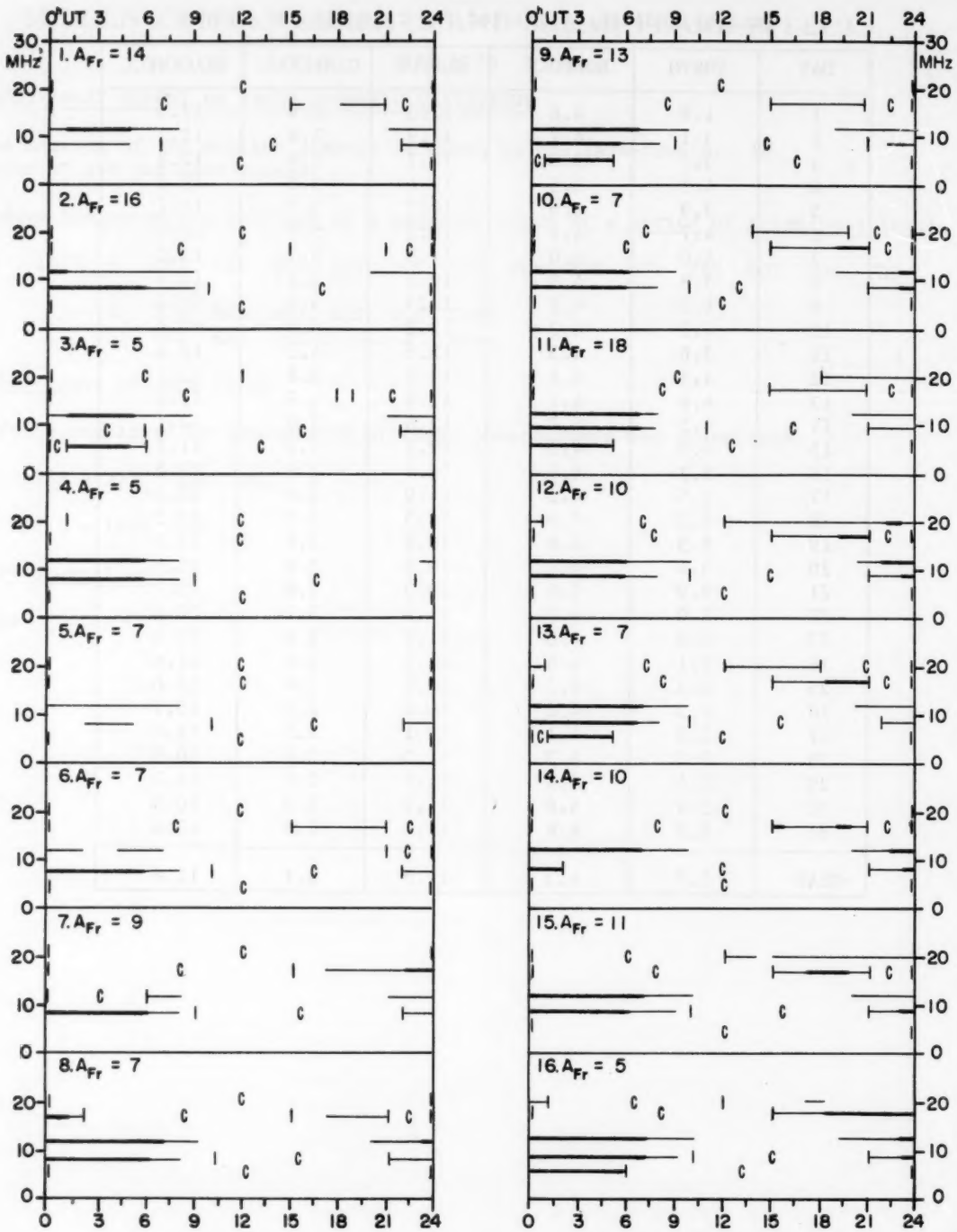
MAY 1979

Quality Indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	1.8	4.6	12.3	2.9	12.5
2	3.1	4.7	11.9	3.8	12.2
3	3.7	3.0	12.7	2.9	12.2
4	4.1	3.5	12.6	3.3	13.0
5	3.9	3.9	12.1	3.9	12.7
6	4.7	4.1	12.3	3.7	13.0
7	4.0	4.0	12.5	3.1	12.2
8	3.8	4.0	12.5	3.2	12.4
9	4.0	4.2	12.3	3.4	12.3
10	4.3	4.3	12.2	3.5	12.4
11	3.6	4.3	12.5	4.2	12.4
12	4.5	4.4	12.6	3.8	12.2
13	4.9	4.7	12.9	3.9	12.8
14	4.5	4.7	12.8	3.6	12.1
15	4.5	4.5	12.3	3.2	11.4
16	5.3	4.8	12.4	2.9	12.5
17	5.5	4.2	11.9	2.8	12.4
18	4.3	4.6	12.5	3.3	12.5
19	3.5	4.6	10.6	3.6	11.3
20	3.4	4.4	10.8	3.6	10.6
21	2.9	4.6	10.9	2.8	10.7
22	2.0	4.1	11.1	3.2	10.6
23	3.4	4.8	11.0	2.6	10.9
24	2.1	4.8	11.5	2.6	11.4
25	2.2	4.5	10.4	2.4	11.0
26	2.3	4.2	10.6	2.5	10.7
27	2.3	4.1	10.1	2.5	11.0
28	3.5	4.3	11.0	2.4	10.9
29	3.4	4.5	11.1	2.1	11.2
30	3.4	4.6	11.2	2.5	10.9
31	4.3	4.8	11.0	2.4	12.4
MEAN	3.7	4.3	11.8	3.1	11.8

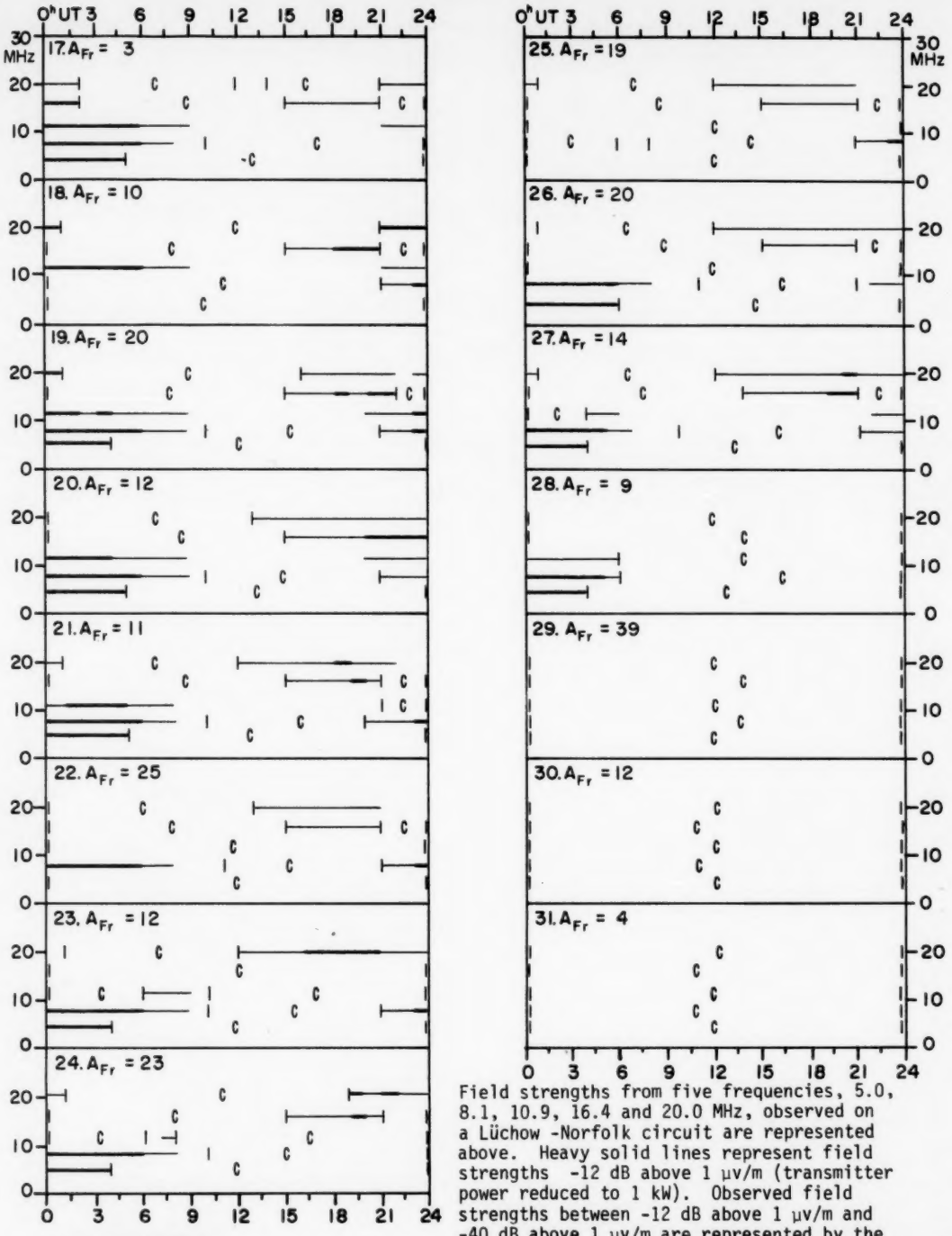
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MAY 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

MAY 1979



Field strengths from five frequencies, 5.0, 8.1, 10.9, 16.4 and 20.0 MHz, observed on a Lüchow -Norfolk circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. **Adapted from Observations by Deutsche Bundespost**

☆GPO 1979—677-073/3

Astro QB1.U57, No419, pt2

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AUG 20 1979

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Solar - Geophysical Data

NO. 419 JULY 1979

Part II (Comprehensive Reports)

DATA FOR
JANUARY 1979
DECEMBER 1978

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SOLAR-GEOPHYSICAL DATA

No. 419

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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F.1f	Cosmic Ray Neutron Counts (Calgary)										
F.1h	Cosmic Ray Neutron Counts (Thule)	419B 62	419B 62	419B 62	419B 62	419B 62	419B 62	419B 62	419B 62	419A153	
F.1i	Cosmic Ray Neutron Counts (Kiel)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	419A153	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	419A153	
F.1k	Cosmic Ray Neutron Counts (Kula)										
F.1l	Cosmic Ray Neutron Counts (Huancayo)						417B 67	418B 72	419B 58		
H.	MISCELLANEOUS										
H.60	IUWDS Alert Decisions	410A 5	411A 4	412A 4	413A 5	414A 4	415A 5	416A 4	417A 4	418A 5	419A 5
H.62	Abbreviated Calendar Record	416B 62	417B 50	418B 40	419B 42						

Notes:

"411A 46" listed under 1978 Sep means that the sunspot drawings for September 1978 were contained in Solar-Geophysical Data Number 411 - Part I, beginning on page 46.

A = Part I, B = Part II.

—— = no data available.
blank = data not yet received.

SGD 419 Part II (Comprehensive)

JANUARY 1979 DATA

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ACTIVE REGIONS

CARRINGTON ROTATION 1676

(December 10, 1978 to January 7, 1979)

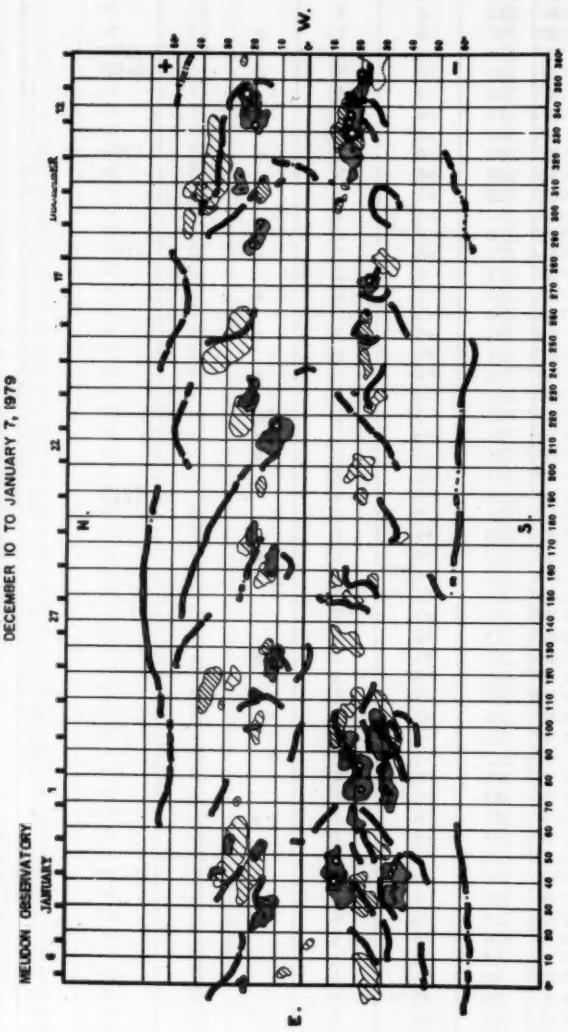
Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1675	Activity at West Limb
1	25°N	359°	+6	1	x		disappeared
2	20 S	349	+1	4			decreasing
3	22 N	340	+5	8			decreasing
4	17 S	336	>6	8			decreasing
5	15 S	332	>6	2			decreasing
6	16 S	322	+1	2			decreasing
7	16 S	314	+1	1	x		decreasing
8	11 N	311	-3	1	x		dispersed
9	26 N	311	>6	2			dispersed
10	17 N	308	-2	2			decreasing
11	41 N	307	>6	2			decreasing
12	11 S	302	+3	2			dispersed
13	37 N	300	>6	1	x	(9)	disappeared
14	45 N	295	>6	1	x	(9)	dispersed
15	19 N	289	6	5			stable
16	23 S	272	>6	4			decreasing
17	22 S	254	>6	2			decreasing
18	22 S	241	>6	1	x		decreasing
19	21 N	229	>6	2			decreasing
20	26 S	226	+4	1	x		dispersed
21	12 N	212	>6	5			decreasing
22	21 S	200	>6	1	x	(30)	dispersed
23	17 N	192	+5	1	x		dispersed
24	21 S	189	>6	1	x		increasing
25	20 N	174	0	2			decreasing
26	37 S	173	-3	1	x		decreasing
27	13 N	164	>6	3			decreasing
28	12 S	157	-2	1	x		disappeared
29	26 S	157	+1	1	x		decreasing
30	17 S	149	>6	1	x		disappeared
31	16 S	132	>6	1	x	(42)	dispersed
32	14 N	130	>6	1	x	(43)	dispersed
33	10 N	127	0	2			decreasing
34	12 N	124	>6	3			stable
35	36 N	114	>6	1	x		decreasing
36	18 N	111	-1	1			increasing
37	20 S	109	>6	1	x		decreasing
38	31 N	108	>6	1	x		disappeared
39	13 S	99	>6	1	x		decreasing
40	18 N	99	>6	1	x		dispersed
41	28 S	97	>6	4		(17)	decreasing
42	17 S	95	>6	4		(49)	decreasing
43	36 S	92	0	1	x		dispersed
44	17 S	87	>6	2			decreasing
45	37 S	84	>6	1	x		dispersed
46	22 S	80	+4	6			stable
47	32 S	78	+4	3			decreasing
48	20 S	64	>6	2			stable
49	28 N	54	-4	2			increasing
50	17 N	52	-3	2			increasing
51	12 S	45	>6	7			decreasing
52	19 N	43	>6	1	x	(58+59)	dispersed
53	32 N	43	-4	1	x		(?)
54	36 S	39	>6	6			decreasing
55	15 S	37	>6	1	x	(60)	decreasing
56	22 S	35	>6	2			decreasing
57	14 N	28	>6	3			decreasing
58	7 N	4	-1	1	x		dispersed
59	26 S	3	>6	1	x	(64)	dispersed
60	22 N	0	-4	2			increasing

ACTIVE REGIONS

CARRINGTON ROTATION 1677

(January 7 to February 3, 1979)

Region No.	Coordinates Lat.	Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1676	Activity at West Limb
1	9°N	348°	+6	6			decreasing
2	16 S	347	>6	1	x		decreasing
3	25 N	342	>6	3			decreasing
4	26 S	337	>6	1	x		dispersed
5	23 N	335	>6	1	x	(3)	decreasing
6	18 S	330	>6	5		(4+5)	stable
7	12 S	328	-3	4			increasing
8	19 N	316	>6	1	x		dispersed
9	18 N	303	>6	3			decreasing
10	22 N	290	>6	1	x	(15)	decreasing
11	16 N	289	>6	5			decreasing
12	10 S	286	>6	1	x		decreasing
13	22 S	280	>6	3			decreasing
14	12 N	278	-2	2			decreasing
15	27 S	273	>6	1	x	(16)	decreasing
16	14 N	271	0	2			decreasing
17	27 N	269	>6	1	x		dispersed
18	27 N	264	+5	2			dispersed
19	21 N	261	+5	1	x		disappeared
20	26 S	261	>6	2			dispersed
21	16 S	256	>6	1	x		decreasing
22	22 S	253	+5	5			decreasing
23	29 S	251	-3	1	x		stable
24	24 S	235	>6	1	x		decreasing
25	14 N	230	-3	1	x		stable
26	21 N	227	+1	2			decreasing
27	10 N	216	>6	4		(21)	decreasing
28	22 S	214	0	3			decreasing
29	22 N	209	+6	1	x		dispersed
30	29 S	207	>6	1	x		dispersed
31	17 S	193	+6	1	x		disappeared
32	20 N	180	>6	3			decreasing
33	34 S	177	+1	2			decreasing
34	18 N	173	>6	5			decreasing
35	10 N	171	+1	1	x		stable
36	14 S	169	>6	3			decreasing
37	8 N	167	-3	2			decreasing
38	8 N	156	+3	2			decreasing
39	18 S	155	+6	2			dispersed
40	28 S	150	-1	2			dispersed
41	12 S	145	>6	4			decreasing
42	26 S	142	+5	2			decreasing
43	18 S	141	>6	1	x		disappeared
44	10 N	137	-4	2			stable
45	15 N	136	>6	5			stable
46	12 N	130	>6	1	x	(33+34)	decreasing
47	17 N	115	-5	2			(?)
48	21 N	114	>6	4			decreasing
49	15 S	104	>6	5			decreasing
50	30 S	94	>6	1	x		dispersed
51	27 S	90	>6	4			decreasing
52	24 N	80	+3	2			disappeared
53	28 S	73	>6	1	x		dispersed
54	22 S	72	>6	3		(46)	decreasing
55	31 S	60	>6	1	x	(47)	dispersed
56	26 N	58	>6	1	x		dispersed
57	14 S	53	>6	1	x	(51)	decreasing
58	16 S	41	>6	1	x	(51)	dispersed
59	28 S	37	>6	1	x		dispersed
60	25 S	16	>6	1	x	(55)	dispersed
61	17 N	5	>6	2			decreasing


SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1676
DECEMBER 10 TO JANUARY 7, 1979
MEUDON OBSERVATORY
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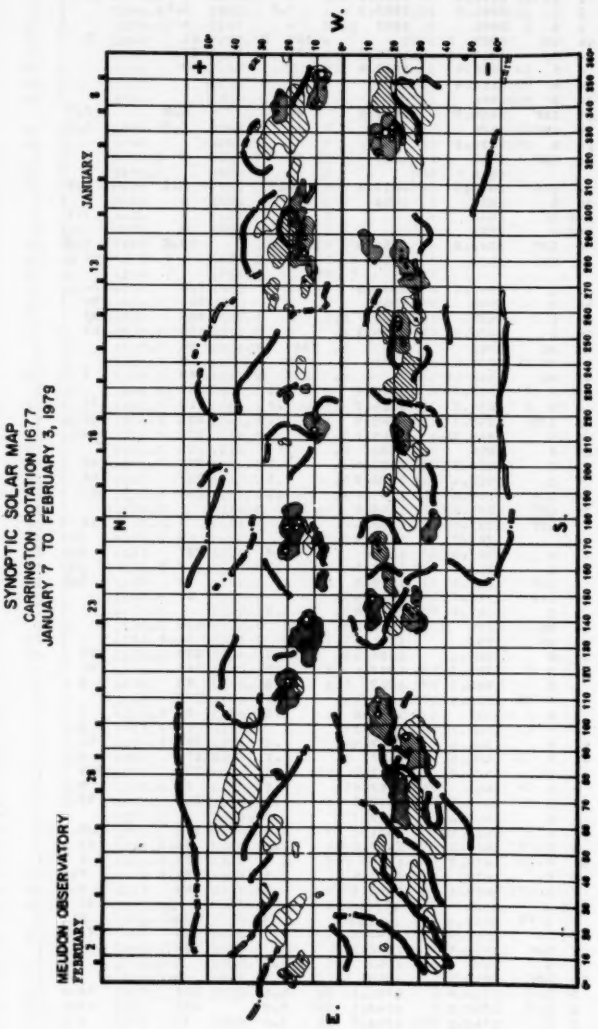
SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1677
JANUARY 7 TO FEBRUARY 3, 1979
MEUDON OBSERVATORY
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SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	6100	KISV	45 C	0847	0852	10	8			
	8800	ATHN	3 S	0850.6	0852.2	10.6	31.2	9.3		
	9500	BERL	3 S	0851	0852	4	15			
	4995	ATHN	3 S	0851.1	0852.2	6	12.7	3.8		
	10400	BERN	1	0851.4	0852.1	4	11			OPR
	10400	BERN	1 S	0851.4	0852.1	4	4	11		OPR
	3000	BERL	3 S	0851.5	0853.3	7.5	9.5			
	15000	KISV	1 S	0851	0852	4	4			
	260	ONDR	44 NS	0903 E		305 D	61	3		
	245	SGMR	44 NS	1218 E	1906.3	537 D	23.4			
	1470	BERL	8 S	0908.5	0909.4	1	39			
	7000	SAOP	24 R	1118.5						0
	7000	SAOP	24 R	1341						0
	9400	HUAN	20 GRF	1444.3	1508.3	24	6.8	2.5		0
	2800	OTTA	20 GRF	1625	1720	115	3.8	1.9		
	7000	SAOP	24 R	1738.2						0
	2800	OTTA	20 GRF	1912	1917	15	2	1		
	7000	SAOP		1928						0
	9400	HUAN	20 GRF	1935.9	2019.6	43.7	5.1	4.6		0
	2695	PENT	24 R	1935	1950	15	4	2		
	2695	PENT	27F RF	1935		135	4	3.4		
	2695	PENT	24P R	1950		95	4			
	9400	HUAN	2 S/F	2002.8	2004.4	1.6	10.2	4.3		L
	2695	PENT	26 FAL	2125	2150	25	-4	-2		
2	100	HIRA	7 C	0553.7	0554.5	2	700	200		
	200	HIRA	46 C	0553	0555	4	1500	200		WL
	200	HIRA	46 C	0638	0639	2	1800	300		0
	100	HIRA	46 C	0638.8	0639.3	2	100	60		WL
	202	IZMI	43 NS	0700		300	50			
	221	ABST	44 NS	0730	0756	90	9			
	260	ONDR	44 NS	0844 E		288 D	88	7		
	202	IZMI	41 F	0803.7	0803.8	1.3	265			
	113	POTS	1 S	0804.7	0804.7	.2	210	70		
	113	POTS	4 S/F	0849.7	0849.9	.4	1400	280		
	202	IZMI	8 S	0849.8	0849.8	.8	220	110		
	3100	CRIM	24 R	0854	1132		11			
	113	POTS	7 C	0920.3	0920.4	.5	200	40		
	202	IZMI	7 C	0920.4	0920.5	1.5	235	140		
	113	POTS	4 S/F	1139.6	1139.7	.2	1200	300		
	9100	ARCE	21 GRF	1204.2	1249.8	102				
	10400	BERN	2 S/F	1207.2	1208.4	3	4	10		OPR
	10400	BERN	2	1207.2	1208.4	3	10			OPR
	930	BORC	41 F	1207.5	1208	1.7	207	2		
	9500	BERL	1 S	1207.5	1208.5	1.5	7.1			
	808	ONDR	2 S/F	1207.5	1208.6	2	40	2.5		
	7000	SAOP	2 S/F	1207.6	1208.5		17			R
	9100	ARCE	1 S	1207.6	1208.6	1.8				
	245	SGMR	44 NS	1218 E	1553.1	538 D	504			
	410	SGMR	43 NS	1547	1701.6	329 D	34.4			
	113	POTS	41 F	1304.2	1306.1	5.9	600	15		
	245	SGMR	7 S	1306.3	1307.1	4.2	303	91		
	410	SGMR	6 S	1306.3	1307	2.6	39	8		
	237	TRST	41 F	1306.9	1306.9	.1	570			0
	606	SGMR	3 S	1307	1308.6	1.8	23	7		
	930	BORD	41 F	1308.7	1308.7	1	18	2		
	113	POTS	41 F	1339.6	1339.9	.3	700	50		
	237	TRST	41 F	1406.6	1407	1.1	11175			24R
	245	SGMR	48 GB	1406.9	1407.2	1.2	4290	858		
	410	SGMR	6 S	1407	1407.2	.8	23	5		
	8800	SGMR	3 S	1410.4	1410.5	.2	311	93.4		
	9100	ARCE	8 S	1419.6	1419.7	.6				
	245	SGMR	6 S	1427.6	1431.2	4.4	102	30.6		
	410	SGMR	6 S	1427.6	1427.6	4.4	39.9	12		
	930	BORD	41 F	1428.2	1429	2	21	2		
	606	SGMR	3 S	1429	1403.1	2.1	24.6	7.4		
	606	SGMR	3 S	1458.1	1458.6	.7	45	9		
	2800	OTTA	240 R	1500	1520	20	2.6	33		
	410	SGMR	6 S	1542.6	1442.7	.9	165	33		
	245	SGMR	7 S	1543.4	1443.5	1.7	380	76		
	7000	SAOP	2 S/F	1551.5	1552.8		100			R
	2800	OTTA	1 S	1552	1553	1.5	1.2	.6		
	2800	OTTA	20 GRF	1715	1750	50	2.2	1.4		
	245	SGMR	7 S	1746.9	1750.1	4.6	260	78		3G
	410	SGMR	6 S	1747.1	1748.1	5.9	160	48		3G
	606	SGMR	3 S	1748.2	1751.1	3.6	30	6		3G
	410	SGMR	7 C	1823.8	1831.3		18.8			
	410	SGMR	7 C	1823.8	1824.8	12	30.2	9.1		
	606	SGMR	45 C	1824.2	1830.3		12.8			
	606	SGMR	45 C	1824.2	1824.5	8.5	38.5	11.6		
	245	SGMR	7 C	1824.2	1830.1		27.2			
	245	SGMR	7 C	1824.2	1825	6.6	96	28.8		
	9400	HUAN	20 GRF	1824.5	1912.3	47.8	8.5	6.3		0
	2800	OTTA	45 C	1824	1825	7	3.8	1.9		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	7000	SAOP	24	R	1826.7						0
	7000	SAOP	24	R	1849						0
	2800	OTTA	20	GRF	1920	1955	70	8	4.4		
	7000	SAOP	24	R	1944.4						0
	606	SGMR	3	S	1958.3	1958.4	.2	42.8	12.8		
	606	SGMR	3	S	2049.4	2051.1	1.8	63	18.9		
	245	SGMR	7	S	2049.8	2050.1	1.4	354	106		
	1420	BOUL	45	C	2156.5E	2157	6.5D	8	3		
	100	HIRA	41	F	2240	2253.5	24	3500			WL
	200	HIRA	41	F	2242	2247	8	1000			WL
	500	HIRA	46	C	2246	2247	2.4	85	40		WL
	200	HIRA	46	C	2331	2332	4	3000	1000		WL
	100	HIRA	46	C	2331	2332	4	25000	5000		0
3	200	HIRA	46	C	0246.5	0248	3	1400	400		WL
	100	HIRA	46	C	0247	0247.5	2	300	100		0
	5730	IRKU	1	S	0359.3	0359.7	15	2			
	200	HIRA	41	F	0602.5	0604	9	500			WL
	100	HIRA	41	F	0603	0611	20	5000			WL
	5730	IRKU	1	S	0604	0605	1	2			
	6100	KISV	8	S	0604	0605	2	14			
	6100	KISV	2	S/F	0650	0651.2	2	4			
	260	ONDR	44	NS	0825 E		325 D	74			
	410	SGMR	44	NS	1210 E	1236.1	539 D	98			3G
	245	SGMR	44	NS	1210 E	1719.4	539 D	126			3G
	3100	CRIM	20	GRF	0837	0929	62	4	1		
	536	ONDR	41	F	0921.8	0924	3	25			
	237	TRST	41	F	0932	0932.9	1.2	310			0
	408	TRST	45	C	0932.8	0932.9	.3	120			
	9100	ARCE	8	S	1022.7	1022.8	.5				
	408	TRST	8	S	1025.7	1025.7	.1	120 D	39		
	408	TRST	41	F	1037.2	1037.4	.4	97 D			
	9100	GORK	2	SF	1041.4	1042.3	1	8	4		
	930	BORD	41	F	1041.5	1042.1	1	21	3		
	650	GORK	2	SF	1041.6	1041.7	1	8	4		
	950	GORK	2	SF	1041.6	1042.2	1.2	6.4			
	202	IZMI	41	F	1041.7	1042	.5	200			
	408	TRST	48	C	1041.7	1041.8	.6	95 D			
	237	TRST	41	F	1042	1042.1	.2	105			0
	408	TRST	41	F	1100.3	1100.6	.4	69			
	536	ONDR	41	F	1100.8	1100.8	14	20			
	237	TRST	41	F	1100.9	1101	.6	185 D			0
	408	TRST	42	SER	1110.2	1112.8	4.7	94 D			
	3000	BERL	20	GRF	1110	1139	47	10			
	408	TRST	42	SER	1134.6	1138.6	9	140 D			
	9500	BERL	22	GRF	1135	1150.3	23	11			
	113	POTS	41	F	1138.5	1138.6	.7	600	40		
	237	TRST	41	F	1138.5	1138.5	.5	65			12R
	202	IZMI	8	S	1138.5	1138.5	.5	190	80		
	29	UPIC	45	C	1138.6	1138.9	1.2				
	33	UPIC	45	C	1138.6	1138.8	.9				
	930	BORD	41	F	1138	1138.7	3	48	3		
	1470	BERL	8	S	1138	1138.7	2.3	49			
	237	TRST	5	S	1141	1141	.1	250	85		14R
	930	EORD	8	S	1216.7	1216.7	1	12	1		
	408	TRST	4	S/F	1217.5	1217.6	.4	43	10		
	9100	ARCE	8	S	1224.8	1224.9	.6				
	408	TRST	4	S/F	1237	1237.1	.4	270	67		
	536	ONDR	41	F	1237	1237	28	14			
	408	TRST	4	S/F	1240.6	1240.8	.2	180	45		
	10400	BERN	2	S/F	1253.5	1254.3	2	3	9		OPR
	7000	SAOP	1	S	1253.5	1254.5					0
	10400	BERN	2		1253.5	1254.3	2	9			OPR
	245	SGMR	6	S	1411.6	1416.5	6.4	166	49.8		5
	606	SGMR	3	S	1411.8	1412	5.9	101	30.3		5
	410	SGMR	48	GB	1412	1415.5		243			5
	410	SGMR	48	GB	1412	1412.1	5.7	941	282		5
	930	BORD	45	C	1412	1412.2	1	34	3		
	237	TRST	5	S	1416.3	1416.4	.1	205	80		0
	2800	OTTA	20	GRF	1432	1438	12	1.4	.7		
	2800	OTTA	8	S	1451.2	1453.5	.7	1.8			
	930	BORD	45	C	1512.2	1512.7	1	106	7		
	2800	OTTA	8	S	1512.3	1512.5	.7	3.2	2.7		
	2800	OTTA	24	R	1520	1550	30	6.6	3.8		
	2800	OTTA	27A	RF	1520		230	6.6	5.8		
	930	BORD	46	C	1544	1545	30 D	288			
	606	SGMR	45	C	1545.1	1612.8	81.9	497	20		
	606	SGMR	45	C	1545.1	1627.9		88			3G,SWF
	2800	OTTA	8	S	1548.6	1548.6	.1E	15.6			
	2800	OTTA	24P	R	1550		175	6.6			
	245	SGMR	7	C	1554	1646.4		67			3G,SWF
	245	SGMR	7	C	1554	1626.1		313			3G,SWF
	245	SGMR	7	C	1554	1605	73	33	12.5		3G,SWF
	410	SGMR	48	GB	1554.4	1608.6	72.6	289	242		3G,SWF
	410	SGMR	48	GB	1554.4	1646.3		78			3G,SWF

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
4	410	SGMR	48	GB	1554.4	1628		606			3G,SWF
	2800	OTTA	20	GRF	1555	1602.3	40	10	6		
	7000	SAOP	3	S	1601.6	1602.4					0
	2800	OTTA	21	GRF	1645	1721	110	11			
	410	SGMR	29	PBI	1707	1710.4	113.4	60	24		
	7000	SAOP	20	GRF	1806						0
	2800	OTTA	22	GRF	1807	1815	25	5.4	3		
	2800	OTTA	26	FAL	1845	1910	25	-6.6	-3.3		
	2800	OTTA	26	FAL	1930	2000	30	-3	-1.5		
	2695	PENT	240	R	2010	2038	28	4	2		
	4995	BOUL	3	S	2114.5	2116	3	42	14		
	9400	HUAN	20	GRF	2144	2156.3	11.7	10.4	6.4		0
	2695	PENT	21	GRF	2144	2149	13	4	2		
	2695	PENT	3	S	2145	2145.7	1	13.2	6.6		
	1420	BOUL	1	S	2145 E	2145.5	2.5D	8	3		
	2695	BOUL	3	S	2146 E	2147	2 D	13	4		
4	260	ONDR	44	NS	0850 E		307 D	54			
	245	SGMR	43	NS	1316	2006.8	482 D	110			
	410	SGMR	43	NS	1316	1537.6	482 D	56.3			
	237	TRST	41	F	0856.9	0857	.3	225			8L
	202	IZMI	8	S	0857	0857	.2	170	70		
	3100	CRIM	20	GRF	0943.5	1007	66	3	1		
	237	TRST	41	F	0946.5	0946.9	.5	108			3L
	930	BORD	45	C	1000.7	1000.8	.4	31	3		
	536	ONDR	42	SER	1027	1029.6	4	27			
	33	UPIC	45	C	1114.8	1115.1	3.1				
	113	POTS	41	F	1114.9	1117.1	2.8	300	30		
	29	UPIC	45	C	1115.2	1115.5	2.8				
	9400	HUAN	28	GRF	1318.6	1705.6	226	12	6.3		0
	237	TRST	41	F	1319.2	1319.5	.8	105			6L
	113	POTS	41	F	1323.7	1323.9	.5	600	75		
	606	SGMR	3	S	1418.8	1419.9	1.4	65	13		
	2800	OTTA	20	GRF	1420 E	1553	230 D	7.8			
	9400	HUAN	21	GRF	1827.5	1858	90.5	7.4	5.3		0
	2800	OTTA	240	R	1905	2005	60	8.4	4.2		
	9400	HUAN	3	S	1935.7	1937.5	2.2	18.5	8.6		R
	200	HIRA	44	NS	2150 E	2318	190 D	8	3		SR
5	9100	GORK	20	GRF	0708.3	0709	11.6	10	5		
	2950	GORK	1	S	0708.5E	0709	7.3	10.5	5		
	5730	IRKU	1	S	0708	0709	1	16			R
	5730	IRKU	29	PBI	0709.5		21	10			R
	260	ONDR	44	NS	0830 E		333 D	28			
	127	TORN	43	NS	1036	1228.1	234 D	60	8		V1
	100	GORK	43	NS	1042		52 D		10		
	410	SGMR	44	NS	1218 E	1846.6	541 D	291			
	245	SGMR	44	NS	1218 E	1523.3	541 D	6.6			
	6100	KISV	2	S/F	0851.3	0852.3	3	2			
	6100	KISV	4	S/F	0909.3	0911	4	3			
	113	POTS	27	RF	1052	1154	156	70	15		
	408	TRST	41	F	1117.7	1118.2	.8	87 D			
	9400	HUAN	20	GRF	1343.7	1434.5	50.8	11.1	7.2		0
	7000	SAOP	1	S	1423	1424.5		63			R
	2800	OTTA	1	S	1424	1424.4	1	5.2	2.6		
	9400	HUAN	20	GRF	1517.8	1638.8	81	9.5	4.5		0
	2800	OTTA	20	GRF	1520	1535	30	2.4	1.8		
	2800	OTTA	26	FAL	1640	1740	60	-3	-1.5		
	2800	OTTA	21	GRF	1820	1847	95	10.6	5		
	9400	HUAN	20	GRF	1825.9	2025.7	119.8	25.4	13.4		0
	7000	SAOP	20	GRF	1829.4						0
	4995	BOUL	28	PRE	1829.5	1832.5	12	22	7		
	2800	OTTA	3	S	1829	1832	13	13.4	6.5		
	2695	BOUL	22	GRF	1830.5E	1833	27 D	17	6		
	4995	BOUL	4	SF	1841.5	1843.5	3.5	45	15		
	4995	BOUL	29	PBI	1845	1845	15.5	2	1		
	2695	PENT	1	S	2028	2029	2	2.8	1.4		
	4995	BOUL	3	S	2053.5	2055.5	3	17	6		
6	2695	MANI	4	S/F	0009.1	0009.8	3.4	10.5	3.5		
	606	MANI	4	S/F	0009.5	0010.8	3	20.7	6.9		
	1415	MANI	47	GB	0009.6	0010.8	5.4	1175	40		
	200	GORK	43	NS	0627 E		303 D		5		
	260	ONDR	44	NS	0933 E		271 D	25			
	127	TORN	43	NS	1147	1151.2	60 U	42	1.6		V1
	410	SGMR	44	NS	1218 E	1639.2	542 D	47.3			3G
	245	SGMR	44	NS	1218 E	1945	542 D	55.4			3G
	221	ABST	7	C	0710	0710.8	10	23	11		
	127	TCRN	40	F	0948 U	0957	22	13			
	2650	DWIN	45	C	1019	1020	2	25	5		
	9500	BERL	1	S	1117.5	1118	1	5.8			
	3000	BERL	7	C	1117.7	1119.6	3.3	14			
	1470	BERL	7	C	1117.9	1120.5	3.1	11			3G
	6100	KISV	8	S	1118	1118.3	1	3			3G
	9100	ARCE	8	S	1153	1153.1	.6				
	9100	ARCE	1	S	1206	1206.2	.6				
	2800	OTTA	2	S/F	1454	1454.3	1	2.4			

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2800	OTTA	8 S	1748.8	1749	.3	3.2			
	9400	HUAN	20 GRF	2055.3	2116.8	21.5	5.1	3.9		O
	2695	PENT	1 S	2055	2056	10	2.8	1.4		
7	6100	KISV	8 S	0642	0642.2	1	4			
	260	ONDR	2 S/F	1024.6	1025.2	1.5	10	1.4		
	127	TORN	41 F	1103.5	1103.9	6	19			
	113	POTS	6 S	1108.9	1108.9	.2	850	100		
	410	SGMR	44 NS	1218 E	1314.3	542 D	88.1			3G
	245	SGMR	44 NS	1218 E	1444	542 D	74.7			3G
	260	ONDR	2 S/F	1227.3	1228	1.5	13			
	9400	HUAN	20 GRF	1718.8	1747.8	29	9.9	4		O
	2800	OTTA	240 R	1900	1935	35	4	2		
	200	HIRA	43 NS	2343	0215	480 D	40	25		ML
8	2930	USSU	47 GB	0220	0238	55	306			
	2695	MANI	47 GB	0224	0237.9	37.5	575	190.8		
	500	HIRA	46 C	0224.8	0233.9	28	90	30		WR
	4995	MANI	47 GB	0225.3	0238.1	36.4	1149	383		
	5730	IRKU		0225	0232.9		280			L
	5730	IRKU	47 GB	0225	0229.4	30	100			L
	5730	IRKU		0225	0238		800			
	8800	MANI	47 GB	0226.4	0238.2	35.2	963.3	321.1		
	1415	MANI	4 S/F	0227	0238.7	33	106.9	35.6		
	200	HIRA	46 C	0228	0234	19	100	80		MR
	100	HIRA	48 C	0231	0232.5	26	7000	100		O
	35000	NAGO	20 GRF	0234	0244	42	167			
	200	GORK	44 NS	0625 E		305 D		5		
	202	IZMI	43 NS	0700		300	50			
	127	TORN	44 NS	0740 E	1319.1	410 D	11	.5U		VO
	221	ABST	43 NS	0800	0809.5	60	13			
	260	ONDR	44 NS	0824 E		347 D	42			
	410	SGMR	44 NS	1218 E	2022.4	544 D	13.4			
	245	SGMR	44 NS	1218 E	1632.8	544 D	155			
	3100	CRIN	20 GRF	0807	1020	263 D	12	4		
	9400	HUAN	21 GRF	1353.8	1529.7	95.9	9.8	5.8		O
	7000	SAOP	4 S/F	1405	1407.6	1.2	25			R
	7000	SAOP	21 GRF	1405						
	7000	SAOP	4 S/F	1405						
	7000	SAOP	21 GRF	1405						
	4995	ATHN	3 S	1405.5	1407.5	6.3	28	8.4		
	8800	ATHN	3 S	1405.7	1407.3	6.1	35.1	10.5		
	7000	SAOP	41 F	1406						
	7000	SAOP	1 S	1406	1407.2		49			R
	9400	HUAN	3 S	1406.8	1408.2	1.4	22.8	13.8		R
	10400	BERN	8 S	1407.1	1407.6	22	7	16		
	10400	BERN	8	1407.1	1407.6	22	16			
	9100	ARCE	1 S	1407	1407.9	2				
	7000	SAOP	4 S/F	1441	1441.9	1.4	30			L
	8800	ATHN	3 S	1441.1	1441.5	6.3	39.5	11.9		
	4995	ATHN	4 S/F	1441.2	1441.5	6.2	55.9	16.8		
	4995	SGMR	3 S	1441.2	1441.3	.8	30.1	9		
	10400	BERN	8	1441.3	1441.8	4	23			
	10400	BERN	8 S	1441.3	1441.8	4	8	23		
	9100	ARCE	3 S	1441.5	1441.9	1.8				
	9400	HUAN	4 S/F	1441.5	1442.2	.7	34.1	19.8		L
	2800	OTTA	3 S	1441.5	1441.9	1.5	11.4	5.7		
	2800	OTTA	23 GRF	1520	1540	50	2.4			
	2800	OTTA	1 S	1551.5	1552.5	2	1.4	.7		
	7000	SAOP	24 R	1559						O
	7000	SAOP	24 R	1648						O
9	5730	IRKU	1 S	0345	0345.8	1	170			
	6100	KISV	4 S/F	0637	0637.4	2	3			
	202	IZMI	43 NS	0700		300	30			
	200	GORK	44 NS	0715 E		120		5		
	221	ABST	43 NS	0800	0818.8	60	19			
	260	ONDR	44 NS	0802 E		378 D	46	6		
	127	TORN	44 NS	0840 E	1049.4	150 U	10	.5		VO
	245	SGMR	44 NS	1218 E	1306.6	545 D	152			
	410	SGMR	44 NS	1218 E	1306.6	545 D	16.2			
	6100	KISV	4 S/F	0725	0732.3	15	5			
	2800	OTTA	1 S	1654	1654	1.5	5.8	2.7		
	9400	HUAN	20 GRF	1837.3	1915.6	28.3	10.2	5.3		L
	7000	SAOP	20 GRF	1906.4			42			L
	2800	OTTA	1 S	1907.5	1908	7	4	1.8		
	2695	PENT	20 GRF	2000	2030	60	2.8	1.4		
	245	SGMR	6 S	2027.8	2027.9	.3	116	23		
	410	SGMR	6 S	2027.8	2027.9	.4	23	5		
	200	HIRA	44 NS	2150 E	0430	595 D	55	15		ML
10	200	GORK	44 NS	0624 E		32.9		10		
	202	IZMI	44 NS	0700		300	60			
	221	ABST	44 NS	0700	0834.5	120	10			
	127	TORN	44 NS	0740 E	0913.5	380 D	830	4		V1

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	260	ONDR	44	NS	0810 E		346 D	184			
	245	SGMR	44	NS	1217 E	1534.2	547 D	233			
	410	SGMR	44	NS	1217 E	1733.8	547 D	25			
	6180	KISV	45	C	0721.5	0722	3	2			
	3180	CRIM	26	FAL	1057	1210	73	12	4		
	9400	HUAN	20	GRF	1539.2	1557.2	18	6.4	3.1		O
	9400	HUAN	20	GRF	1809.5	2021	131.5	19.4	13.2		O
	2800	OTTA	21	GRF	1840	1940	70	3.8	2		
	2800	OTTA	8	S	1843	1843	.5	1.4	.7		
	2800	OTTA	1	S	1849.5	1850.2	2	3.6	1.8		
	9400	HUAN	20	GRF	2048.5	2131.9	43.4	16.1	9.4		O
	2695	PENT	21	GRF	2050	2110	70 D	8.4			
	1420	BOUL	1	S	2056 E	2056.5	1 D	8	3		
	2695	PENT	1	S	2057.5	2058	1	3	1.5		
	200	HIRA	44	NS	2150 E	0540	595 D	90	50		WL
	4995	BOUL	3	S	2159	2251	4	11	4		
11	2695	MANI	4	S/F	0057	0100.1	5.3	22.3	7.4		I
	1415	MANI	4	S/F	0057.6	0059	8.4	92.3	30.7		
	5730	IRKU	3	S	0530	0536	10	10			R
	2950	GORK	4	SF	0647.5U	0648.9	6.4	25	12		
	9100	GORK			0647.7	0650	9.4	17	6.5		
	9100	GORK	3	S	0647.7	0648.9	2.4	90	45		
	2695	MANI	3	S	0647.9	0648.9	2.1	15.6	5.2		
	8800	MANI	3	S	0647.9	0648.9	2.1	106.8	35.6		
	5730	IRKU	2	S	0647	0648.7	7	39	9		R
	4995	MANI	3	S	0648	0649	3	16.6	5.5		
	1415	MANI	1	S	0648.1	0649	1.9	4.9	1.6		
	606	MANI	4	S/F	0648.3	0649	1.1	74.4	24.8		
	4995	ATHN	2	GRF	0648.7	0649.5	2.5	22	13.2		
	8800	ATHN	2	GRF	0648.7	0649.5	2.4	68.3	41		
	2695	ATHN	2	GRF	0648.7	0649.5	2.5	6.3	3.8		
	221	ABST	44	NS	0700	0709.8	120	20			
	202	IZMI	44	NS	0700		300	45			
	127	TORN	44	NS	0740 E	1019.4	410 D	32	3		V1
	260	ONDR	44	NS	0830 E		329 D	179	13		
	245	SGMR	44	NS	1217 E	1405.2	548 D	335			3
	410	SGMR	44	NS	1217 E	1429.3	548 D	93.3			3
	8400	BERN	42	SER	0741	0743.2	15	88	250		
	18400	BERN	42	SER	0741	0743.2	15	73	211		
	10400	BERN	42		0741	0743.1	15	211			
	3100	CRIM	3	S	0741	0742.5	7	120	40		
	8400	BERN	42		0741	0743.1	15	250			13R
	9100	GORK			0741.7	0746.6		209			
	9100	GORK	46	C	0741.7	0743	16.3	199			
	9100	ARCE	46	C/F	0741.8	0747	7.9				
	9100	ARCE			0741.8	0743.3	4.3				
	2950	GORK			0742.3	0746.9		113			
	2950	GORK	46	C	0742.3	0743.4	7.2	147			
	950	GORK	46	C	0742.5	0742.8	.7D	30			
	9500	BERL	46	C	0742.5	0747	7.5	150			
	1470	BERL	46	C	0742.5	0743.5	6.5	53			
	3000	BERL	46	C	0742.5	0743.4	6.5	133			
	8800	MANI	4	S/F	0742.8	0743.4	6.9	270.6	180.4		
	2695	MANI	4	S/F	0742.9	0743.8	7.2	127.4	84.9		
	5730	IRKU			0742	0747		160			
	5730	IRKU			0742	0745.6		52			
	5730	IRKU			0742	0744		100			
	5730	IRKU	47	GB	0742	0743.3	20	115			
	1415	MANI	4	S/F	0743	0744.1	8.2	32.2	21.5		
	650	GORK	45	C	0743.1	0743.2	.9D	20 E			
	650	GORK			0743.1	0743.5		20 E			
	4995	MANI	4	S/F	0743.2	0743.8	7.5	105.9	70.6		
	1415	ATHN	2	GRF	0743.3	0744.6	21.3	59.1	35.4		
	2695	ATHN	14	C	0743.4	0744.4	21.8	126.8	38		
	4995	ATHN	14	C	0743.4	0747.5		116.6			
	8800	ATHN	14	C	0743.4	0744	20.9	289.7	86.9		
	4995	ATHN	14	C	0743.4	0744	20.8	116.6	35		
	8800	ATHN	14	C	0743.4	0747.5		236.3			
	9100	ARCE			0746.1	0747	3.6				
	9100	ARCE	29	PBI	0749.7						ATM ATT
	113	POTS	8	S	0815.1	0815.2	.1	200	70		
	10400	BERN	4	S/F	1123.4	1126.1	13	9	26		
	10400	BERN	4		1123.4	1126.1	13	26			
	8800	ATHN	1	F	1124	1127.1	10.3	48.1	24		
	4995	ATHN	1	F	1124	1127.8	9.7	25.1	12.5		
	9500	BERL	4	S/F	1124	1127.4	16	27			
	9400	HUAN	3	S	1124.2	1156.8	32.6	39.4	10.8		R
	9100	GORK	2	SF	1124.5	1127.5	5.7	29	12		
	3000	BERL	3	S	1125	1127.5	6	11			
	3100	CRIM	1	S	1125	1127	4.5	18	3		
	888	ONDR	4	S/F	1125.2	1125.2	1	75			
	9100	ARCE	3	S	1125.9	1127.1	3.7				
	930	BORC	41	F	1125	1125.2	.5	66	2		
	10715	OMIN	45	C	1125	1128	5	25	10		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION		FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES		PEAK	MEAN		
	1470	BERL	3	S	1143.5	1143.7	1		6.8			
	930	BORD	45	C	1145.6	1145.8	.4		21	2		
	7000	SAOP	46	C	1225							
	7000	SAOP			1225	1227.4			23			R
	7000	SAOP			1225	1226.8			14			R
	7000	SAOP	4	S/F	1225	1235.8						O
	9500	BERL	31	ABS	1234	1235.8	10		31			
	10400	BERN	3	S	1234.7	1235.7	12		10	30		
	10400	BERN	3		1234.7	1235.8	12		30			
	9400	HUAN	3	S	1234.8	1238.2	3.4		41	17.2		L
	3000	BERL	1	S	1235	1236	5		5.9			
	9100	ARCE	3	S	1235.2	1236.1	2.4					
	1470	BERL	8	S	1235.5	1236	.7		42			
	9100	ARCE	29	PBI	1237.6		6.5					
	9400	HUAN	29	PBI	1238.2	1258.5	20.5		9.8	2.2		O
	2800	OTTA	21	GRF	1445	1515	65		2.4	1.6		
	2800	OTTA	8	S	1508	1508	.2		10.2			
	2800	OTTA	26A	FAL	1640	1705	25		-3.2	-1.6		
	9400	HUAN	3	S	1658.5	1700.7	2.2		27.9	11		O
	7000	SAOP	4	S/F	1659	1659.6	1		13			L
	2800	OTTA	1	S	1659	1659.7	3		5.6	3.8		
	2800	OTTA	20	GRF	1739	1741	35		2.8	1.4		
	2800	OTTA	26	FAL	1902	1910	8		-1.6	-.8		
	200	MIRA	44	NS	2150	E 0605	595	D	190	50		O
	500	MIRA	27	RF	2312	0132	228		20	5		O
12	4995	MANI	4	S/F	0025	0027.7	7.5		80.3	53.3		
	2695	MANI	4	S/F	0025.3	0027.7	7.7		35.8	23.8		
	8800	MANI	4	S/F	0025.9	0027	4.6		96.3	64.2		
	1415	SYDN	27	RF	0026.3	0028	3.8					
	221	ABST	44	NS	0600	0608	180		9			
	200	GORK	44	NS	0630	E	330			20		
	202	IZMI	44	NS	0700		300		90			
	127	TORN	44	NS	0740	E 1318.9	420	D	180	16		V1
	260	ONDR	44	NS	1007	E	245	D	108	8		
	245	SGMR	44	NS	1217	E 1313.8	550	D	670			
	410	SGMR	44	NS	1217	E 1707.8	550	D	43			
	113	POTS	44	NS	1241	E 1408	91	D	70			
	606	SGMR	43	NS	1408	1614.4	447	D	11			
	3100	CRIM	21	GRF	0953	1012	69		4	1		
	6100	KISV	1	S	1018.3	1019	2		2			
	6100	KISV	4	S/F	1030	1029.3	10		9			
	1470	BERL	42	SER	1031	1035	5		22			
	9500	BERL	1	S	1032	1034.7	4		7.1			
	3100	CRIM	1	S	1033	1033.5	1		3	1		
	808	ONDR	2	S/F	1033.3	1034.6	2		45	3.8		
	15000	KISV	2	S/F	1033	1034.5	3		5			
	3100	CRIM	3	S	1034.5	1035	1.5		16	5		
	3000	BERL	3	S	1034.5	1034.8	.8		31			
	2950	GORK	3	S	1034.8	1035.2	1.1		42	21		
	950	GORK	4	SF	1034.8	1035.1	1		27			
	2650	OWIN	45	C	1034	1034.5	1		50	20		
	6100	KISV	4	S/F	1040	1047	10		18			
	10400	BERN	4		1045.4	1047	4		18			
	10400	BERN	4	S/F	1045.4	1047	4		6	18		
	15000	KISV	4	S/F	1045	1046.3	5		10			
	3100	CRIM	1	S	1046	1046.5	1.5		5	2		
	10715	OWIN	1	S	1046	1046.5	1		15	5		
	9100	GORK	2	SF	1049.7	1050	1.1		27	12		
	15000	KISV	4	S/F	1058.3	1059.5	2		18			
	10400	BERN	8		1059	1059.8	4		26			
	7000	SAOP	4	S/F	1059	1059.1	1.1		45			R
	10400	BERN	8	S	1059	1059.8	4		9	26		
	8800	ATHN	2	GRF	1059.2	1059.4	10.1		27.5	16.5		
	2695	ATHN	2	GRF	1059.2	1059.4	9.9		3.7	2.2		
	4995	ATHN	2	GRF	1059.2	1059.4	10.6		20.9	12.5		
	3100	CRIM	1	S	1059.5	1059.8	1		5	2		
	930	BORD	46	C	1059.6	1059.8	.4		235	2		
	9100	GORK	4	SF	1059.7	1100.1	1.6		38	16		
	6100	KISV	4	S/F	1059	1059.5	3		19			
	10715	OWIN	1	S	1059	1059.5	1		20	5		
	10400	BERN	4	S/F	1103.6	1106.3	8		6	16		
	10400	BERN	4		1103.6	1106.3	8		16			
	6100	KISV	4	S/F	1105	1107	5		18			
	3100	CRIM	1	S	1106	1106.2	1		3	1		
	3000	BERL	1	S	1106	1106	1		4.3			
	9500	BERL	3	S	1106	1106.4	1		16			
	7000	SAOP	45	C	1106	1106.2			10			R
	10715	OWIN	1	S	1106	1106.5	1		10	5		
	930	BORD	46	C	1134.5	1134.7	1		98	4		
	808	ONDR	42	SER	1226.6	1226.6	2.5		242			
	536	ONDR	42	SER	1226	1227.1	3		143			
	3000	BERL	1	S	1227.3	1227.8	1.2		5.2			
	1470	BERL	8	S	1227.5	1228	1		18			
	606	SGMR	47	GB	1227.5	1227.7	2.3		700	210		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	245	SGMR	6	S	1227.7	1228.2	51.8	132	39.6		
	408	TRST	42	SER	1227.7	1228.1	1.8	380			
	930	BORD	46	C	1228.7	1228.8	.5	195	3		
	536	ONDR	42	SER	1328	1330.6	4	273			
	930	BORC	42	SER	1329.6	1329.7	3.6	49	3		
	245	SGMR	6	S	1330	1330.6	1.9	140	28		
	410	SGMR	6	S	1330	1330.5	3.4	14	3		
	606	SGMR	3	S	1330.7	1331.3	1.4	160	32.6		
	2800	OTTA	2	S/F	1525	1527	5	5.6	1.8		
	606	SGMR	47	GB	1526	1526.1	1.9	517	155		
	7800	SAOP	45	C	1526	1527.1		43			L
	410	SGMR	48	GB	1526.1	1526.2	2.1	5930	1780		
	245	SGMR	6	S	1526.1	1526.2	.7	191	57.3		
	930	BORD	41	F	1526	1526.2	.5	74	3		
	9400	HUAN	20	GRF	1555.3	1649.8	54.5	6	2.6		0
	7800	SAOP	45	C	1620	1623.4		21			R
	606	SGMR	3	S	1621.8	1621.9	.3	16.2	4.9		
	2800	OTTA	1	S	1621.8	1621.9	1.5	1.2	.5		
	2800	OTTA	2	S/F	1635.9	1636.1	6	2.6	1.3		
	2800	OTTA	20	GRF	1740	1800	60	3.4	2.2		
	2695	PENT	1	S	2112	2114	8	1.4	.7		
	4995	BOUL	45	C	2152.5	2154	4	22	7		
	9400	HUAN	1	S	2153.5	2155.4	1.9	10	7.3		R
	9400	HUAN	8	S	2156.2	2157	.8	68.5	26.3		R
13	5730	IRKU	1	S	0257	0258.5	3	8			R
	221	ABST	44	NS	0600	0731	120	28			
	200	GORK	44	NS	0630 E		330		20		
	202	IZMI	44	NS	0700		300	80			
	127	TORN	44	NS	0740 E	1248	420 D	49	6		V1
	260	ONDR	44	NS	0820 E		335 D	148	13		
	245	SGMR	44	NS	1216 E	1646.1	552 D	138			
	410	SGMR	44	NS	1216 E	1610.1	552 D	63.3			
	6100	KISV			0650	0701		7			
	6100	KISV			0650	0656.3		5			
	6100	KISV			0650	0652		3			
	6100	KISV	42	SER	0650	0708	35	21			
	15000	KISV	2	S/F	0658	0700.4	6	6			
	9100	GORK	1	S	0659.8	0700.5	3.4	9.6	4		
	5730	IRKU	1	S	0700	0701	3	5			L
	4995	ATHN	3	S	0706.2	0708.2	10.8	39.2	17.8		
	8800	ATHN	4	S/F	0706.3	0708.2	8.5	51	15.3		
	2695	ATHN	3	S	0707.2	0708.1	7.6	9.4	2.8		
	9100	GORK	21	GRF	0707.2E	0714.7	150 D	10.7	4.5		
	2950	GORK	3	S	0707.2	0708	2.8	19	9		
	650	GORK	4	SF	0707.3	0707.3	.3	46	23		
	950	GORK	1	S	0707.5	0708.1	2	2.8	1.4		
	9100	GORK	2	SF	0707.5	0708	16.4	22.5	11		
	15000	KISV	3	S	0707	0708	4	14			
	5730	IRKU	2	S	0707	0708.1	2	27			L
	5730	IRKU	29	PBI	0709.3		40	7			L
	2950	GORK	20	GRF	0715.5	0736	36.7	11	4		
	9100	GORK	20	GRF	0731.6	0736.7	16.4	10	3.5		
	113	POTS	45	C	0823.4	0827.2	5.8	350	25		
	6100	KISV	1	S	0830	0833.5	6	4			
	9100	GORK	1	S	0833	0833.5	2.1	8	4		
	113	POTS	42	SER	0859.3	0901.8	3.2	200	3		
	15000	KISV	1	S	1009	1011	6	5			
	113	POTS	42	SER	1022.6	1022.9	.7	700	18		
	6100	KISV	4	S/F	1102	1108	13	7			
	6100	KISV	2	S/F	1135	1136.1	5	3			
	9100	ARCE	21	GRF	1146.9	1200.6	34				
	10400	BERN	46	C	1147.5	1155	30	19	55		OPR
	10400	BERN	46	C	1147.5	1150.8	30	15	45		OPR
	10400	BERN	46		1147.5	1155	30	55			OPR
	10400	BERN	46		1147.5	1150.8	30	45			OPR
	9400	HUAN			1147.7	1156		62.5			
	9400	HUAN			1147.7	1155.1		60.8			
	9400	HUAN	46	C	1147.7	1210.5	22.8	55.6	21.3		LRL
	6100	KISV	42	SER	1147	1156	82	30			
	6100	KISV			1147	1155.1		17			
	6100	KISV			1147	1153		16			
	6100	KISV			1147	1152		13			
	6100	KISV			1147	1151		17			
	15000	KISV			1147	1156.3		56			
	15000	KISV			1147	1152		38			
	15000	KISV			1147	1151		36			
	15000	KISV	42	SER	1147	1155	28	64			
	7000	SAOP	45	C	1148	1155.5		12			L
	9100	ARCE	1	S	1149.1	1149.2	.5				
	1415	ATHN	3	S	1149.5	1155.1	10.5	39.1U	11.7U		
	2695	ATHN	3	S	1149.8	1156.1	15.8	30.4	9.1		
	8800	ATHN	4	S/F	1149.8	1155.8	21.9	66.6	20		
	4995	ATHN	3	S	1149.9	1155.9	12.7	40.3	12.1		
	808	ONDR	41	F	1149	1150.5	9	55	5.3		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	1470	BERL	45 C	1150	1155.4	8	53			
	3000	BERL	45 C	1150	1156.1	10	34			
	9500	BERL	45 C	1150	1155.8	22	56			
	650	GORK		1150	1157.7		45			
	650	GORK		1150	1155.9		160			
	650	GORK	41 F	1150	1150.8	12	100			
	2950	GORK		1150.1	1155		42			
	2950	GORK	46 C	1150.1	1151	7.3	27			
	9100	ARCE		1150.2	1150.9	4.4				
	9100	ARCE	46 C/F	1150.2	1156	9.2				
	930	BORD	46 C	1150	1152.5	8	125	5		
	536	ONDR	48 C	1150	1155.6	14	296	58		
	10715	OWIN	45 C	1150 U	1155 U	8	50	15		
	2650	OWIN	45 C	1150 U	1156 U	8	40	10		
	9100	ARCE		1154.6	1156	4.8				
	950	GORK	45 C	1154.6	1155.3	3.5	23			
	950	GORK		1154.6	1156.2		22			
	408	TRST	45 C	1156	1156.1	.3	210 D			
	237	TRST	41 F	1156.1	1156.1	.2	1105			2R
	234	POTS	5 S	1156.1	1156.2	.2	1200	250		
	408	TRST	47 GB	1157	1201.5	7.8	80			
	200	GORK	8 S	1158	1158 U	1.4	400 D			
	100	GORK	46 C	1158.1	1158.7	6	230 D			
	100	GORK		1158.1	1202.1		2000			
	202	IZMI	45 C	1158.2	1158.2	1	850	400		
	113	POTS	46 S	1158.2	1200.3	3.4	150	15		
	127	TORN	46 C	1159	1159.6	2	130	40		
	7000	SAOP	4 S/F	1224	1225.1	2.8	15			R
	9100	ARCE	1 S	1224.8	1225.1	1.6				
	7000	SAOP	1 S	1226	1227.2	3.8				
	9100	ARCE	8 S	1316.5	1316.7	.7				
	10400	BERN	23 GRF	1324.7	1327.3	54	9	27		OPR
	10400	BERN	23	1324.7	1327.3	54	27			OPR
	9400	HUAN	21 GRF	1325.7	1707.6	221.9	39.9	11.1		0
	9400	HUAN	3 S	1326.7	1328.2	1.5	17.4	8.4		0
	9500	BERL	3 S	1327	1327.3	2	17			
	9100	ARCE	3 S	1327.2	1327.4	1.6				
	9100	ARCE	20 GRF	1334.5	1347	46.5				
	3000	BERL	20 GRF	1338	1342.5D	22	12			
	9500	BERL	20 GRF	1340	1344	18	10			
	1470	BERL	1 S	1341	1342.5	3	5.4			
	2800	OTTA	26A FAL	1605	1815	130	-9.2	-5		
	9400	HUAN	3 S	1637.3	1639	1.7	15.6	8.1		R
	7000	SAOP	1 S	1651	1652	11	43			R
	2800	OTTA	1 S	1651.2	1651.8	1	2.4	1.2		
	4995	BOUL	3 S	1651	1651.5	1.5	11	4		
	9400	HUAN	20 GRF	1756.5	1811.6	15.1	5.2	4.2		0
	4995	BOUL	28 PRE	1801.5	1806.5	16	22	7		
	7000	SAOP	4 S/F	1815	1818	3.5	29			R
	4995	BOUL	8 S	1816.5	1817.5	2	69	23		
	15400	SGMR	3 S	1817.1	1817.8	2.2	43.7	13.1		SWF
	9400	HUAN	4 S/F	1817.1	1819.3	2.2	60.8	26.2		R
	2695	SGMR	3 S	1817.9	1818.1	1.3	43.4	13		SWF
	4995	SGMR	3 S	1817.9	1818.2	1.3	36	10.8		SWF
	2800	OTTA	3 S	1817	1818	3	27	7		
	8800	SGMR	3 S	1818.2	1818.3	1.2	51.9	15.6		SWF
	2695	BOUL	3 S	1818.5E	1819	1.5D	25	8		
	4995	BOUL	29 PBI	1818.5	1818.5	18.5	16	5		
	4995	BOUL	4 SF	1837.5	1838.5	1.5	13	4		
	4995	BOUL	3 S	1839.5	1841	2	13	4		
	4995	BOUL	3 S	1845	1847	3	16	5		
	2800	OTTA	240AR	1850	1920	30	8	4		
	2800	OTTA	1 S	1903	1903.5	2	2.4	1.2		
	7000	SAOP	45 C	1906	1932.3		14			L
	2800	OTTA	1 S	1906.5	1907	1	2.8	1.4		
	2800	OTTA	8 S	1908.8	1908.8	.2	18			
	9400	HUAN	21 GRF	1911.8	2106.4	114.6	22.6	8.3		0
	9400	HUAN	45 C	1930.3	1937	6.7	66	41.1		LORL
	9400	HUAN		1930.3	1934.2		90.3			
	4995	BOUL	45 C	1930.5	1932	7	88	29		
	1420	BOUL	28 PRE	1931.5E	1932.5	2 D	25	8		
	15400	SGMR	3 S	1931.8	1934.1	4.4	67.1	20.1		SWF
	2800	OTTA	45 C	1931	1934.5	8	56	19.2		
	4995	SGMR	3 S	1932	1932.6	6.8	72	21.6		SWF
	2695	SGMR	3 S	1932.1	1934.5	4.3	68.2	20.5		SWF
	8800	SGMR	3 S	1932.4	1932.6	3.8	51.9	15.6		SWF
	2695	BOUL	28 PRE	1932.5E	1933.5	2.5D	47	16		
	1420	BOUL	3 S	1933.5E	1934	2 D	34	11		
	1420	BOUL	29 PBI	1935.5	1935.5	24 U	4	1		
	2695	BOUL	3 S	1935 E	1935.5	1.5D	54	18		
	2695	BOUL	29 PBI	1936.5E	1936.5	3.5D	6	2		
	2800	OTTA	30 PBI	1939	1939	120	9.6	4.8		
	2800	OTTA	1 S	2046	2046.5	1	6.8	3.4		
	200	HIRA	44 NS	2150 E	0650	595 D	60	18		WL
	2695	BOUL	3 S	2306.5E	2308	2.5D	41	14		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
14	5730	IRKU	2	S	0237	0237.5	4	15			
	5730	IRKU	1	S	0510.5	0511.4	3	9			
	500	HIRA	46	C	0538.3	0538.5	2	25	15		HR
	200	GORK	44	NS	0627 E		330		5		
	221	ABST	44	NS	0700	0741	120	14			
	202	IZMI	43	NS	0700		220	30			
	100	GORK	43	NS	0715		280 D		5		
	127	TORN	44	NS	0750 E	0824.4	410 D	84	4		VO
	260	ONDR	44	NS	0820 E		350 D	61	3		
	245	SGMR	44	NS	1216 E	1751.4	553 D	224			3G
	410	SGMR	44	NS	1216 E	1803.4	553 D	12.8			3G
	650	GORK	4	SF	0803.7	0808.7	5.7	16.5	4		
	950	GORK			0803.7	0808.7		26			
	950	GORK	45	C	0803.7	0807.4	8.6	12			
	2950	GORK	1	S	0808.6	0809.4	1.8	4.2	2		
	234	POTS	4	S/F	0813.7	0814	.6	190	10		
	9100	GORK	21	GRF	0815	0822	24	7.6	3.5		
	9100	GORK	1	S	0834.7	0835.3	.8	9	4.5		
	127	TORN	45	C	0855.7	0855.8	.8	47	20		
	100	GORK	45	C	0857	0857.7	1.3	880			
	100	GORK			0857	0857.8		700			
	237	TRST	41	F	0927.1	0927.2	.3	95			2L
	536	ONDR	45	C	0943.5	0945	2	260			
	6100	KISV	4	S/F	0943.5	0945.3	6	5			
	15000	KISV	1	S	0944.3	0945.3	5	6			
	408	TRST	41	F	0944.4	0944.9	1	500			
	9100	GORK	1	S	0944.8	0945.1	.9	13	6.5		
	9100	ARCE	1	S	0945	0945.5	1.2				
	930	BORO	41	F	1044.4	1045.7	2.2	28	2		
	408	TRST	8	S	1050.6	1050.6	.1	110			
	536	ONDR	45	C	1050	1051.3	1.5	162			
	408	TRST	7	C	1051	1052.8	4	23			
	9100	GORK	1	S	1117.8	1118.2	.7	5.3	2.7		
	536	ONDR	4	S/F	1125.2	1125.8	1	377 D			
	408	TRST	4	S/F	1125.9	1126.1	.4	110 D			
	6100	KISV	8	S	1149	1155	16	82			
	9400	HUAN	3	S	1152.8	1283.6	10.8	447	92.1		R
	9100	GORK			1153.4	1153.9	3.5	78			
	9100	GORK			1153.4	1154.4		76			
	2695	ATHN	4	S/F	1153.8	1154.9	23.6	325.5	97.7		
	4995	ATHN	4	S/F	1153.8	1155.1	31.7	283.6	85.1		
	8800	ATHN	5	GB	1153.9	1154.9	27.5	668	200.4		
	3000	BERL	3	S	1154	1154.9	16	300			
	1470	BERL	3	S	1154	1155.2	19	350			
	9500	BERL	3	S	1154.2	1154.9	3.3	445			
	10400	BERN	8	S	1154.2	1154.9	4.5	145	421		
	8400	BERN	8	S	1154.2	1154.9	4.5	160	418		
	408	TRST	45	C	1154.2	1154.6	4.1	210 D			
	8400	BERN	8		1154.2	1154.9	4.5	418			3R
	10400	BERN	8		1154.2	1154.9	4.5	421			
	1415	ATHN	4	S/F	1154.3	1154.8	24.7	466.8	140		
	808	ONDR	4	S/F	1154.3	1154.3	6	323	42		
	930	BORO	45	C	1154.3	1155	4.7	105	28		
	9100	ARCE	3	S	1154.4	1155	3.6				
	2950	GORK	3	S	1154.4	1154.9	3	209			
	650	GORK	3	S	1154.4	1154.6U	3.6	100 D			
	202	IZMI	8	S	1154.5	1154.5	.5	210	100		
	536	ONDR	4	S/F	1154	1154	6	351	53		
	15000	KISV	8	S	1154	1154.4	6	806 D			
	260	ONDR	4	S/F	1155.5	1156.6	2.5	206 D	68		
	2650	OWIN	45	C	1155 U		6	130 D			
	237	TRST	47	GB	1156.3	1157.3	1.2	1435			B
	234	POTS	46	C	1156.3	1157.3	1.2	700	50		
	202	IZMI	7	C	1156.7	1157.2	1.4	170	60		
	200	GORK	8	S	1157	1157.8	1.5	340			
	127	TORN			1158.9	1200.8		32			
	127	TORN	7	C	1158.9	1159.6	2.7	38	4		
	9100	ARCE	29	PBI	1158		23.5				
	408	TRST	8	S	1224.1	1224.1	.1	480	160		
	7000	SAOP	45	C	1255	1256.4		39			R
	8400	BERN	45	C	1255.4	1256.5	10	16	45		
	10400	BERN	45	C	1255.4	1256.5	10	16	49		
	8400	BERN	45		1255.4	1256.5	10	45			15R
	10400	BERN	45		1255.4	1256.5	10	49			
	9100	ARCE			1255.6	1256.7	2				
	9100	ARCE	46	C/F	1255.6	1256.7	4.3				
	8800	ATHN	14	C	1255.7	1256.6	18.6	56.8	17.1		
	9500	BERL	4	S/F	1256	1256.3	19	50			
	9400	HUAN	45	C	1256.1	1316.6	10.5	77.5	20.8		R
	4995	ATHN	13	C	1256.2	1257.6	12.4	35.2	10.6		
	9100	ARCE			1257.6	1257.8	2.3				
	3000	BERL	3	S	1259	1302	7	26			
	1470	BERL	4	S/F	1259.7	1300.5	7.3	69			
	2695	ATHN	14	C	1259.7	1300.1	8.9	68	20.4		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	1415	ATHN	1A C	1259.7	1301.7		48.4	14.5		
	1415	ATHN	1A C	1259.7	1300.4	8.6	55.8	16.7		
	930	BORD	46 C	1259.8	1259.9	4.2	515	8		
	9100	ARCE	29 PBI	1259.9	1301	55				
	888	ONDR	8 S	1300	1300	.2	182			
	2650	OWIN	45 C	1301 U	1302 U	8	90	20		
	2800	OTTA	23 GRF	1435	1650	255	8.4	4.2		
	7000	SAOP	1 S	1453	1453	1.8	17			L
	2800	OTTA	1 S	1537.5	1539	2.5	2.8	1.4		
	7000	SAOP	4 S/F	1549	1550.3	5.6	10			L
	2800	OTTA	1 S	1608.5	1609	2	3.4	1.2		
	4995	BOUL	45 C	1659.5	1701	4.5	17	6		
	7000	SAOP	4 S/F	1700	1701.4	6	9			L
	9400	HUAN	20 GRF	1829.3	1924.8	55.5	8	3.8		0
	2800	OTTA	26 FAL	1850	2010	80	-12.8	-6.4		
	4995	BOUL	3 S	2213	2214.5	2.5	11	4		
	700	SYDN	4 S	2227.8	0028.9	2.4				
	4995	BOUL	4 SF	2303.5	2308	5.5	53	18		
	2695	MANI	4 S/F	2304.5	2307.7	5.3	35.3	11.7		
	1415	SYDN	40 F	2305.8	2307.4	3.6				
	700	SYDN	40 F	2305.9	2307.3	2.4				
	2695	PENT	4 S/F	2305	2307.5	5	35	12		
	8800	MANI	4 S/F	2306	2307.6	3.1	282.3	94.1		
	4995	MANI	4 S/F	2306.2	2307.6	3	61.2	20.4		
	606	MANI	4 S/F	2306.5	2307.7	1.8	21.3	7.1		
	1415	MANI	4 S/F	2306.6	2307.8	3.2	40.2	13.4		
	1420	BOUL	45 C	2306 E	2307	2.5D	109	36		
	1420	BOUL	8 S	2309 E	2309	1 D	81	27		
15	700	SYDN	8 S	0101.4	0101.5	.3				
	700	SYDN	8 S	0442.6	0442.7	.2				
	700	SYDN	40 F	0456.4	0457.7	1.4				
	6100	KISV	4 S/F	0635	0641	25	20			
	9100	GORK	4 SF	0637.9	0640.5	5.1	56	28		
	15000	KISV	4 S/F	0638	0641.2	17	20			
	5730	IRKU		0638	0639.9		42			R
	5730	IRKU	45 C	0638	0639.3	18	23			R
	5730	IRKU		0638	0644.4		18			R
	5730	IRKU		0638	0641.8		56			R
	5730	IRKU		0638	0641.2		64			R
	5730	IRKU		0638	0640.8		67			R
	2950	GORK	3 S	0639 U	0640.5	3	24			
	2950	GORK	29 PBI	0639 U	0642	8.6	15			
	2695	ATHN	2 GRF	0639.2	0641.3	6.7	20.1	12.1		
	4995	ATHN	2 GRF	0639.2	0641.3	7.5	42.4	25.5		
	8800	ATHN	2 GRF	0639.2	0641.2	7.2	41.2	24.7		
	8800	ATHN	1 F	0659.3	0723.2	63	78.3	39.1		
	4995	ATHN	1 F	0659.5	0723.5	62.1	60.6	30.3		
	6100	KISV	4 S/F	0705	0722.3	45	18			
	15000	KISV	4 S/F	0710	0723	25	20			
	9100	GORK	21 GRF	0714.7	0723.2	40	38	14		
	5730	IRKU		0714	0720.2		29			R
	5730	IRKU		0714	0719.2		29			R
	5730	IRKU		0714	0717.9		28			R
	5730	IRKU	45 C	0714	0716.5	13	28			R
	5730	IRKU		0714	0725		24			R
	5730	IRKU		0714	0723.9		30			R
	5730	IRKU		0714	0722.7		43			R
	2950	GORK	21 GRF	0715	0720	24.2	28			
	2695	ATHN	2 GRF	0715.4	0723.5	47	26.8	16.1		
	9100	GORK	1 S	0715.9	0716.1	1	13	6.5		
	2950	GORK	4 SF	0720.5	0722.6	4.9	38	13		
	9100	GORK	1 S	0722	0722.3	1.2	14	6.5		
	5730	IRKU	29 PBI	0727		21	17			R
	260	ONDR	44 NS	0815 E		361	51			
	410	SGMR	44 NS	1216 E	1516.8	554 D	22.8			
	245	SGMR	44 NS	1216 E	1432.2	554 D	15.2			
	113	POTS	4 S/F	0931.1	0931.6	.6	158	18		
	9100	ARCE	29 PBI	1005.5	1011.1	34				
	6100	KISV	40 F	1038	1048	12	4			
	6100	KISV	4 S/F	1055	1102	20	52			
	15000	KISV	4 S/F	1055	1059.3	24	58			
	3100	CRIM	3 S	1058	1102	6	64	21		
	3100	CRIM	29 PBI	1058	1104	27.5	11.5	4		
	7000	SAOP	45 C	1058	1102		36.2			R
	1415	ATHN	2 GRF	1058.9	1101.5	24.3	31.3	18.8		
	2695	ATHN	2 GRF	1059	1101.5	26.8	80.3	48.2		
	4995	ATHN	2 GRF	1059	1101.5	26	135.1	81.1		
	8800	ATHN	2 GRF	1059	1101.5	26.9	134.2	80.5		
	10400	BERN	2	1059.1	1101.7	37	90			OPR
	10400	BERN	2 S/F	1059.1	1101.7	37	30	90		OPR
	9100	ARCE	4 S/F	1059.6	1102.1	5.9				
	9100	GORK	21 GRF	1059.7	1110.5	36.3	24.6	11		
	3000	BERL	4 S/F	1100	1101.9	7.5	89			
	9500	BERL	29 PBI	1100	1101.6	30	110			

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				UT	UT	MINUTES	PEAK	MEAN		
	1470	BERL	4 S/F	1100	1102.2	12	32			
	2950	GORK	29 PBI	1100.5	1104.9	11.2	19			
	2950	GORK	4 SF	1100.5	1101.2	4.8	60 D			
	9100	GORK	5 S	1100.7	1101.8	4.4	129	60		
	10715	DWIN	45 C	1100	1102	6	100	50		
	2650	DWIN	45 C	1100	1102	8	90	40		
	950	GORK	6 S	1101	1101.9	4.8	5.7	2.8		
	536	ONDR	3 S	1101.7	1101.7	.2	21			
	9400	HUAN	45 C	1101.8E	1106.2	4.4	125.6	73.2		R
	237	TRST	41 F	1102.2	1102.3	.1	85			3R
	113	POTS	2 S/F	1124.4	1124.5	.1	100	30		
	488	TRST	4 S/F	1133.8	1133.8	.2	31			
	237	TRST	41 F	1134.4	1134.5	.3	155			0
	536	ONDR	42 SER	1153	1212.6	52	75			
	488	TRST	3 S	1223.3	1223.3	.1	100	33		
	237	TRST	42 SER	1238.2	1238.4	1.6	740			2R
	237	TRST		1238.2	1239.5		150			0
	1415	ATHN	4 S/F	1334.3	1335.9	4.6	93.8	28.2		
	2695	ATHN	4 S/F	1334.4	1335.5	4.4	117.4	35.2		
	4995	ATHN	4 S/F	1334.4	1335.5	4.7	131.2	39.4		
	8800	ATHN	4 S/F	1334.5	1335.5	4.5	181.9	54.6		
	536	ONDR	48 C	1334.5	1335.8	8	91	18		
	1470	BERL	46 C	1334.5	1336.8	11	79			
	10400	BERN	4 S/F	1334.8	1335.9	11	50	145		OPR
	2800	OTTA	4 S/F	1334.8	1336	4	102	26		
	10400	BERN	4	1334.8	1335.9	11	145			OPR
	3000	BERL	4 S/F	1334.9	1335.7	4.1	102			
	260	ONDR	48 C	1334	1338	7.5	222 D	12		
	7800	SAOP	4 S/F	1335	1336	1.5	17.6			R
	9500	BERL	3 S	1335	1335.8	5	137			
	606	SGMR	3 S	1335	1336.5	12.2	56.6	22.6		3G
	1415	SGMR	3 S	1335	1336.5	2.9	89	35.6		3G
	15400	SGMR	3 S	1335.1	1335.9	1.8	131	52.4		3G
	113	POTS	42 SER	1335.2	1336.2	6.2	2100	110		
	9400	HUAN	3 S	1335.2	1339.2	4	187.8	47.3		R
	29	UPIC	45 C	1335.2	1336.6	1.8				
	9100	ARCE	4 S/F	1335.3	1336.1	3.8				
	33	UPIC	45 C	1335.5	1336.5	1.8				
	8800	SGMR	3 S	1335.5	1335.8	1.4	198	79.2		3G
	2695	SGMR	3 S	1335.5	1335.8	2.5	127	50.8		3G
	4995	SGMR	3 S	1335.5	1335.8	2.5	97.8	39.1		3G
	410	SGMR	48 GB	1335.5	1338.6	11.5	1290	516		3G
	237	TRST	42 SER	1335.9	1335.9	6.1	1760			0
	237	TRST		1335.9	1339.5		3450			0
	237	TRST		1335.9	1338.7		760			2L
	234	POTS	42 SER	1335.9	1339.3	6	900	7		
	930	BORD	45 C	1335	1336.5	9	78	9		
	808	ONDR	46 C	1335	1336.2	10	68	34		
	10715	DWIN	45 C	1335	1336	4	140	50		
	2650	DWIN	45 C	1335	1336	4	120	40		
	245	SGMR	7 S	1336	1336.1	11	355	142		3G
	9400	HUAN	20 GRF	1359.2	1447.3	48.1	7.4	5.3		0
	2800	OTTA	21 GRF	1615	1700	100	4.2	2.1		
	2800	OTTA	1 S	1651.4	1651.6	1	4.8	2		
	2800	OTTA	20 GRF	1810	1845	100	3.4	1.7		
	7800	SAOP	45 C	2005	2025.3					
	4995	BOUL	4 SF	2005	2007	8	41	14		
	9400	HUAN	20 GRF	2006.9	2030.5	23.6	11	5.1		R
	2695	PENT	4 S/F	2006	2007.7	4	31	15.5		
	2695	BOUL	3 S	2008 E	2008.5	2 D	40	13		
	2695	BOUL	29 PBI	2009.5E	2009.5	20.5D	19	6		
	2800	OTTA	30 PBI	2010	2010	100	8.8	4.4		
	4995	BOUL	29 PBI	2012.5	2012.5	29	14	5		
	4995	BOUL	45 C	2024.5	2025	3	16	5		
	2800	OTTA	4 S/F	2024	2025.6	5	19.8	4.8		
	1420	BOUL	3 S	2025 E	2025.5	1.5D	12	4		
	1420	BOUL	29 PBI	2026.5	2026.5	4.5	4	1		
	2695	BOUL	3 S	2026 E	2026	.5D	33	11		
	2695	BOUL	42 SER	2128 E	2129	3 D	27	9		
	4995	BOUL	3 SF	2228	2229.5	3.5	16	5		
	2695	PENT	1 S	2233	2233.5	1	5.6	2.8		
	700	SYDN	45 C	2300.8	2301.2	.8				
16	700	SYDN	8 S	0014.2	0014.4	.3				
	700	SYDN	8 S	0421.6	0421.8	.4				
	700	SYDN	1 S	0424.3	0424.4	.2				
	700	SYDN	8 S	0424.7	0424.8	.3				
	700	SYDN	1 S	0428.7	0428.8	.2				
	6100	KISV	1 S	0620	0631	30	6			
	200	GORK	44 NS	0624 E		330 D		5		
	260	ONDR	44 NS	0806 E		363 D	48			
	245	SGMR	44 NS	1215 E	1346.1	556 D	54			
	6100	KISV		0725	0745.3		15			
	6100	KISV		0725	0741.3		36			
	6100	KISV		0725	0739		40			

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				UT	UT	MINUTES	PEAK	MEAN		
	6100	KISV	45 C	0725	0742.3	35	73			
	15000	KISV	45 C	0725	0742	35	79			
	3100	CRIM	3 S	0730	0738	30	21	7		
	9100	GORK	22 GRF	0732.2	0746.7	26.6	14	7		
	2695	MANI	47 GB	0736.2	0738.4	10.6	544	23		
	2695	MANI	4 S/F	0736.2	0742.2		68			
	950	GORK	21 GRF	0736.8	0740	7.1	7			
	2950	GORK		0736.8	0742.1		114			
	2950	GORK	46 C	0736.8	0738.3	7.2	117			
	9100	GORK	45 C	0737.2	0739.3	9	48	27		
	9100	GORK		0737.2	0742.3	135				
	9100	GORK		0737.2	0741.2		45			
	5730	IRKU		0737.5	0742.4		110			
	5730	IRKU		0737.5	0741.4		58			
	5730	IRKU	45 C	0737.5	0739.3	30 D	56			
	2695	ATHN	14 C	0737.5	0742.4		60.3			
	2695	ATHN	14 C	0737.5	0739.5	11.9	60.3	18.1		
	9500	BERL	45 C	0737.5	0741.6	6.5	102			
	1470	BERL	45 C	0737.5	0739.5	6	29			
	3000	BERL	45 C	0737.5	0738.4	6	206			
	4995	ATHN	14 C	0737.6	0742.4		130			
	4995	ATHN	14 C	0737.6	0739.5	10	74.9	22.5		
	1415	ATHN	2 GRF	0737.6	0739.6	10.2	55.4	33.3		
	8800	ATHN	14 C	0737.8	0742.5		141.4			
	8800	ATHN	14 C	0737.8	0739.5	10.5	49.9	15		
	10400	BERN	45	0738.2	0740.3	11	24			OPR
	10400	BERN	45	0738.2	0743.4	11	69			OPR
	10400	BERN	45 C	0738.2	0743.4	11	24	69		OPR
	10400	BERN	45 C	0738.2	0740.3	11	8	24		OPR
	650	GORK	4 SF	0738.4	0739.2	3	24	4		
	606	MANI	4 S/F	0738.5	0739.3	5.4	93.7	31.2		
	8800	MANI	4 S/F	0738.9	0742.4	6.3	152.7	50.9		
	4995	MANI	4 S/F	0739	0742.3	8.8	95.8	31.9		
	950	GORK	3 S	0739	0739.5	1.1	30			
	1415	MANI	4 S/F	0739.3	0739.5	5.2	35.7	11.9		
	8400	BERN	45	0741	0743.4	11	66			OPR
	8400	BERN	45 C	0741	0743.4	11	25	66		OPR
	6100	KISV	20 GRF	0809	0813	11	4			
	3100	CRIM	21 GRF	0810	0932	134	6	2		
	9100	GORK	20 GRF	0811.8	0819	26	7.5	4		
	6100	KISV	2 S/F	0847	0851	9	2			
	3100	CRIM	1 S	0849	0851	5	3	1		
	6100	KISV	2 S/F	0900	0903	10	7			
	9100	GORK	1 S	0902.5	0903.3	6.4	9	4.5		
	6100	KISV	2 S/F	0915	0919.3	10	6			
	3100	CRIM	1 S	0916.5	0919	4	10	3		
	2950	GORK	20 GRF	0917	0919.3	9	18	9		
	3000	BERL	3 S	0917.4	0919	6.1	11			
	9100	GORK	20 GRF	0918.2	0919.3	21	6.5	3		
	1470	BERL	8 S	0918.5	0919	1	26			
	930	BORD	45 C	0918.5	0919	1.5	18	3		
	950	GORK	1 S	0918.6	0918.9	.8	10.6	5.3		
	408	TRST	47 GB	0950.4	0956.7	10	100			
	127	TORN	40 F	0950	0954.3	6	9	.7		
	9100	ARCE	1 S	0957.9	0958.1	.9				
	234	POTS	28 PRE	1000	1005	20	210	35		
	9100	ARCE	1 S	1002.6	1002.8	.9				
	9100	GORK	21 GRF	1035.9	1040	31	47	8		
	9500	BERL	29 PBI	1036	1036.9	22	166			
	9100	ARCE	45 C	1036.3	1037.2	4.8				
	9100	ARCE		1036.3	1037.2	1.9				
	3000	BERL	4 S/R	1036.5	1039	4	53			
	9100	GORK	46 C	1036.5	1037	3.5	173			
	2950	GORK	29 PBI	1036.5	1042	8.5	14			
	2950	GORK	4 S	1036.5	1039.1	5.4	98	46		
	9100	GORK		1036.5	1039					
	3100	CRIM	3 S	1036.5	1039	4.5	48	16		
	3100	CRIM	29 PBI	1036.5	1041	10.5	16	5		
	10715	OWIN	45 C	1036	1039	8	130	50		
	2650	OWIN	45 C	1036	1039	7	35	15		
	9100	ARCE		1038.2	1039.1	2.9				
	9100	ARCE	29 PBI	1041.1		21				
	408	TRST	8 S	1217.7	1217.7	.1	71	23		
	9400	HUAN	21 GRF	1250.3	1401.8	71.5	6.7	4.4		R
	9400	HUAN	3 S	1311.6	1312.8	1.2	21.7	9.8		L
	9400	HUAN	1 S	1349.8	1350.8	1	9.2	8.4		L
	410	SGMR	6 S	1358.5	1359	.8	69.4	20.7		
	245	SGMR	6 S	1358.5	1359.2	.9	230	69		
	2800	OTTA	27 RF	1430		180	3	2.6		
	2800	OTTA	24 R	1430	1440	10	3	1.5		
	2800	OTTA	24P R	1440		135	3			
	410	SGMR	6 S	1553.3	1554	2.5	206	61.8		
	245	SGMR	6 S	1553.6	1554.5	1.7	206	61.8		

SOLAR RADIO EMISSION
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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	606	SGMR	1 S	1553.8	1554	.4	4.2	1.3		
	2800	OTTA	26 FAL	1655	1730	35	-3	-1.5		
	2800	OTTA	1 S	1749.5	1750	2	4.6	2.3		
	2800	OTTA	29 PBI	1751.5	1751.5	20	2.4	1.8		
	9400	HUAN	20 GRF	1756.7	1832.8	36.1	3.3	2.8		O
	1420	BOUL	1 S	1823 E	1823.5	2 D	9	3		
	9400	HUAN	20 GRF	1840.1	1916	35.9	16.7	9.8		O
	2800	OTTA	240 R	1840	1846	6	4	2.6		
	4995	BOUL	3 SF	1852	1854.5	6	29	10		
	2800	OTTA	23 GRF	1853	1854.5	105	5.4			
	2800	OTTA	1 S	1854.8	1855.1	1	8.2	4		
	9400	HUAN	3 S	1917.6	1919.7	2.1	20	5.5		L
	2800	OTTA	2 S/F	1937.7	1939.4	3	4			
	7000	SAOP	4 S/F	1953	1955.1	3.8	21			L
	2695	PENT	240 R	2140	2205	25	5	2.5		
	200	HIRA	44 NS	2150 E	2330	595 D	48	28		MR
	2695	PENT	4 S/F	2243.2	2244.5	4	19	9.2		
	1415	SYDN	27 RF	2243.4	2244.7	2.8				
	1420	BOUL	3 S	2243.5E	2244.5	3 D	12	4		
	700	SYDN	27 RF	2243.8	2244.4	1.2				
	2695	BOUL	3 S	2244 E	2245	2.5D	27	9		
17	6100	KISV	45 C	0635	0640	10	5			
	6100	KISV	45 C	0655	0659.3	10	4			
	221	ABST	43 NS	0800	0822	60	9			
	260	ONDR	44 NS	0810 E		366 D	20			
	245	SGMR	44 NS	1215 E	1436.9	557 D	34			
	3100	CRIM	1 S	0904.5	0904.7	1	6	2		
	8800	ATHN	2 GRF	0938.4	0941.6	11.6	9.7	5.8		
	2695	ATHN	2 GRF	0940.9	0945.7	10.8	16.3	9.8		
	4995	ATHN	2 GRF	0940.9	0945.8	8.9	23.2	13.9		
	6100	KISV	2 S/F	0940	0946	10	9			
	3100	CRIM	1 S	0944	0945.2	2.5	10	3		
	3000	BERL	3 S	0944	0945.5	3.5	14			
	9500	BERL	1 S	0944.5	0945.5	4.5	8.7			
	9100	ARCE	20 GRF	0944.6	0945.8	19				
	9100	GORK	1 S	0945	0945.6	2.2	8.9	4		
	2950	GORK	1 S	0945	0945.7	1.5	9.8	4.9		
	9400	HUAN	20 GRF	1240.7	1336.5	55.8	6.7	2.9		O
	9400	HUAN	20 GRF	1413	1450.7	37.7	8.4	4.3		O
	8800	SGMR	3 S	1420.2	1420.7	.7	343	103		
	2800	OTTA	1 S	1437	1437.5	1.5	1.4	.7		
	2650	DWIN	45 C	1515		17	150 D			
	9400	HUAN	20 GRF	1557.1	1636.3	39.2	16.8	7		R
	4995	BOUL	3 S	1603	1605	6	13	4		
	2800	OTTA	20 GRF	1605	1607	20	8	2.6		
	930	BORD	45 C	1606	1606.5	2	38	5		
	2695	PENT	20 GRF	2047	2051.5	23	3.2	1.4		
	2695	PENT	8 S	2212.7	2213	.7	3.2	1.6		
18	700	SYDN	8 S	0443.8	0444.1	.4				
	700	SYDN	45 C	0504.2	0504.3	.8				
	200	GORK	44 NS	0639 E		318 D		5		
	100	GORK	43 NS	0658		69		5		
	221	ABST	44 NS	0700	0755.2	120	7			
	127	TORN	44 NS	0750 E	0958.2	280 U	20	.3		V0
	260	ONDR	44 NS	0810 E		372 D	20			
	245	SGMR	44 NS	1214 E	1701.9	560 D	32.7			
	8800	ATHN	3 S	1230.7	1230.8	6.4	47	14.1		
	113	POTS	8 S	1247.2	1247.2	.1	158	50		
	9400	HUAN	20 GRF	1344.6	1445.4	60.8	10.1	6.8		O
	9400	HUAN	20 GRF	1525.6	1635.5	69.9	10.9	4.8		O
	930	BORD	8 S	1558.2	1558.2	.1	35	1		
	9400	HUAN	20 GRF	1735.7	1809.2	33.5	5	3.9		R
	2800	OTTA	1 S	1833	1834.2	3	1.4			
	7000	SAOP	22 GRF	1846	1847.2	5.2				
19	6100	KISV	4 S/F	0701.3	0702	4	3			
	260	ONDR	44 NS	0813 E		353 D	74			
	245	SGMR	44 NS	1213 E	1309	562 D	372			
	127	TORN	43 NS	1215 U	1326.5	145 D	36	.2U		V1
	410	SGMR	43 NS	1446	1550.6	409 D	10.6			
	536	ONDR	2 S/F	1113.4	1115.3	2.5	21	2		
	808	ONDR	2 S/F	1113.6	1115	2	22			
	6100	KISV	21 GRF	1113	1137	23	13			
	1470	BERL	4 S/F	1114	1115.3	2	7.4			
	3000	BERL	3 S	1114	1114.8	2	7.3			
	650	GORK		1114.2	1115.1		3			
	650	GORK	45 C	1114.2	1114.8	1.4	4.5			
	408	TRST	41 F	1114.4	1114.6	1.7	110			
	260	ONDR	4 S/F	1114.6	1115.4	3	128	15.8		
	950	GORK	2 SF	1114.6	1115.4	2.2	11			
	237	TRST	41 F	1114.8	1115.2	.9	275 D			2R
	930	BORD	45 C	1114	1115.6	2	24	3		
	234	POTS	2 S/F	1115.1	1115.2	.5	100	20		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	7030	SAOP	1	S	1136	1137	2.2				
	4995	ATHN	3	S	1136.3	1136.9	2	15.5	4.6		
	8800	ATHN	3	S	1136.4	1136.9	1.7	9.2	2.7		
	9100	GORK	1	S	1136.5	1137.1	2.2	14	7		
	9500	BERL	1	S	1136.5	1137	2.5	8.6			
	3000	BERL	3	S	1136.5	1137	1.5	8.2			
	2950	GORK	1	S	1136.7	1137.2	.8	6.8	3.4		
	9100	ARCE	1	S	1136.9	1137.2	3.7				
	3100	CRIM	1	S	1137	1137.3	1.5	6	3		
	237	TRST	41	F	1238.7	1238.9	.3	625			0
	234	POTS	2	S/F	1238.7	1238.9	.2	200	15		
	237	TRST	5	S	1308.9	1308.9	.1	368	13		0
	9400	HUAN	21	GRF	1314.2	1506.2	112	14.8	6.2		0
	7000	SAOP	21	GRF	1337						
	8800	ATHN	2	GRF	1339.8	1340.5	2.4	18.3	11		
	4995	ATHN	2	GRF	1339.9	1341	4.6	18.1	10.8		
	7000	SAOP	3	S	1340						
	9400	HUAN	3	S	1340	1342.7	2.7	19.8	11.9		R
	3000	BERL	3	S	1340	1345	7.5	8.2			
	9500	BERL	2	S/F	1340	1341	2.5	16			
	9100	ARCE	3	S	1340.1	1341.1	2.3				
	10400	BERN	3	S	1340.5	1341.4	3	5	14		OPR
	10400	BERN	3		1340.5	1341.4	3	14			OPR
	10715	OWIN	1	S	1340	1341	2	10	5		
	9100	ARCE	29	PBI	1342.4		30.7				
	2800	OTTA	240	R	1430	1440	10	2	.8		
	4995	BOUL	8	S	1510.5	1511.5	3	51	17		
	2800	OTTA	240	R	1530	1545	15	4	2		
	930	BORO	45	C	1550.2	1550.4	.5	22	2		
	2800	OTTA	1	S	1550	1550.4	1	6	1.6		
	2800	OTTA	240	R	1705	1740	35	5.6			
	2800	OTTA	21	GRF	1750	1843	55	4	1.8		
	2800	OTTA	8	S	1831.6	1831.6	.1	2			
	9400	HUAN	20	GRF	1833.1	1850.8	17.7	8.4	3.3		0
	2695	PENT	20	GRF	1940	2007	75	3.6	1.8		
	2695	PENT	240	R	2115	2135	20	3.6	1.8		
20	200	GORK	43	NS	0803		240		5		
	260	ONDR	44	NS	0816	E	354	D	34		
	410	SGMR	44	NS	1213	E	1316	563	D	14	
	245	SGMR	44	NS	1213	E	1311.1	563	D	55	
	3100	CRIM	1	S	0919	0919.5	1.5	3	1		
	3100	CRIM	25	R	1010	1103	141	D	7		
	3100	CRIM	3	S	1103	1106	6	8	3		
	2695	ATHN	2	GRF	1103.6	1106.2	7.4	25.7	15.4		
	4995	ATHN	2	GRF	1104	1106.2	5.8	21.9	13.1		
	8800	ATHN	2	GRF	1104	1107.2	7	22.6	13.5		
	7000	SAOP	1	S	1104.3	1106	3.6				
	9100	ARCE	1	S	1104.5	1106.5	4.7				
	9500	BERL	29	PBI	1104	1106.4	31	7			
	2650	OWIN	1	S	1104	1106	5	10	5		
	6100	KISV	4	S/F	1104	1106.3	6	9			
	3000	BERL	29	PBI	1105	1107.3	30	13			
	1470	BERL	29	PBI	1105	1106.4	26	5			
	113	POTS	8	S	1202.7	1202.8	.1	280	90		
	930	BORO	8	S	1207.5	1207.5	.1	31	1		
	9400	HUAN	20	GRF	1208	1334.2	86.2	11.6	3.7		0
	9100	ARCE	1	S	1421.5	1422	1.4				
	9100	ARCE	21	GRF	1421.5	1433.6	23.5				
	2800	OTTA	20	GRF	1710	1720	15	2.4	1.2		
	2695	PENT	20	GRF	2103	2104	25	2.8	1.4		
	2695	PENT	20	GRF	2130	2150	20	3.6	1.8		
21	221	ABST	44	NS	0700	0808.8	60	9			
	200	GORK	43	NS	0727	E	270	D	5		
	260	ONDR	44	NS	0750	E	410	D	67	9	
	100	GORK	43	NS	0911		36		10		
	410	SGMR	44	NS	1212	E	1501.5	565	D	66.6	3
	245	SGMR	44	NS	1212	E	1449	565	D	348	3
	3100	CRIM	20	GRF	0746	0753	15	12	4		
	10400	BERN	3	S	0755.8	0756.1	1.2	8	24		OPR
	10400	BERN	3		0755.8	0756.1	1.2	24			OPR
	9100	GORK	1	S	0756.2	0756.4	.5	16	8		
	650	GORK	41	F	0816.6	0817	3	4			
	650	GORK			0816.6	0819.1		1.5			
	3100	CRIM	24	R	0822	1022		18			
	9100	GORK	20	GRF	0844	0932.6	143.4	14	6		
	650	GORK	20	GRF	0856.1	0907.8	62	19	5		
	127	TORN	41	F	0908	0925.5	37	U	32	6	
	200	GORK	27	RF	0921.4	0932.5	59	30			
	6100	KISV	21	GRF	0923	0932	23	6			
	6100	KISV			0923	0944		4			
	6100	KISV	2	S/F	1046.3	1047.3	2	6			
	4995	ATHN	4	S/F	1309	1313.7	9.3	136.2	40.9		
	1415	SGMR	3	S	1309.2	1313.7	11.8	76	22.8		3,SWF

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	8800	ATHN	4 S/F	1310.5	1313.7	12.1	87	26.1		
	260	ONDR	46 C	1311.5	1314.4	5	111	38		
	9400	HUAN	4 S/F	1311.6	1317.8	6.2	70.4	22.7		R
	7800	SAOP	4 S/F	1311.7	1313.6					O
	245	SGMR	48 GB	1311.9	1314.8	4.7	639	192		3,SWF
	2695	ATHN	4 S/F	1312	1313.7	11.3	146.7	44		
	10400	BERN	4 S/F	1312	1313.5	5.5	23	68		
	3800	BERL	4 S/F	1312	1313.2	5	140			
	9500	BERL	4 S/F	1312	1313.5	4.5	67			
	1470	BERL	4 S/F	1312	1313.9	8	69			
	1415	ATHN	4 S/F	1312.1	1317.8	5.9	80.8	24.2		
	18400	BERN	4	1312.1	1313.5	5.5	68			
	15400	SGMR	3 S	1312.2	1313.3	2.6	42.2	12.7		3,SWF
	9100	ARCE	3 S	1312.2	1313.8	2.8				
	127	TORN		1312.4	1318.8		270			
	127	TORN	48 C	1312.4	1315.7	12.5	180	75		
	4995	SGMR	3 S	1312.4	1313.7	3.2	53	15.9		3,SWF
	2695	SGMR	3 S	1312.5	1313.9	4	108	32.4		3,SWF
	410	SGMR	6 S	1312.5	1314.3	3.3	33.3	10		3,SWF
	29	UPIC	45 C	1312.5	1313.9	1.5				
	237	TRST	47 GB	1312.5	1314.6	3.7	1245			D
	33	UPIC	45 C	1312.6	1314.2	3.2				
	2650	DWIN	45 C	1312		8	120 D			
	10715	DWIN	45 C	1312	1314	4	60	20		
	888	ONDR	4 S/F	1312	1313.1	3	71	37		
	938	BORC	46 C	1312	1312.8	7	104	10		
	2800	OTTA	4 S/F	1312	1313.5	6	130	35		
	686	SGMR	3 S	1312.5	1314.3	4.2	140	42		3,SWF
	8800	SGMR	3 S	1313.4	1313.7	2.6	85.2	25.6		3,SWF
	234	POTS	46 C	1313.1	1314.5	3	420	20		
	113	POTS	48 C	1313.2	1318.5	11	800	70		
	536	ONDR	45 C	1313	1313	5	12	6.7		
	9100	ARCE	29 PBI	1315		12				
	9400	HUAN	21 GRF	1414.7	1539.8	85.1	7.2	3.9		R
	2800	OTTA	21 GRF	1420 E	1445	155 D	6.6			
	2695	ATHN	2 GRF	1508.8	1512.3	8.7	19.6	11.7		
	18400	BERN	3	1509.1	1511.9	6	43			
	10400	BERN	3 S	1509.1	1511.9	6	15	43		
	4995	ATHN	3 S	1510.9	1512.1	6	39.3	11.8		
	8800	ATHN	3 S	1511.4	1512	6.1	41.2	12.4		
	2800	OTTA	1 S	1511.5	1511.8	1.5	1.4	.7		
	8800	SGMR	3 S	1511.6	1511.9	1.6	42.6	12.8		3G
	4995	SGMR	3 S	1511.6	1512	2	21.2	63.6		3G
	9100	ARCE	3 S	1511.6	1512	3				
	9400	HUAN	3 S	1511.6	1516	4.4	54.1	15.1		R
	2800	OTTA	20 GRF	1740	1753	30	3.4	1.7		
	2800	OTTA	240 R	1820	1838	10	4.2	2.1		
	2800	OTTA	22 GRF	1855	2110	210	10.6	5.3		
22	180	GORK	44 NS	0623 E		124		5		
	280	GORK	44 NS	0624 E		170		5		
	221	ABST	44 NS	0700	0742	120	7			
	127	TORN	44 NS	0750 E	1314.3	410 D	37	.5		V1
	260	ONDR	44 NS	0810 E		375 D	34			
	410	SGMR	44 NS	1211 E	1448.7	568 D	27.6			
	245	SGMR	44 NS	1211 E	1455.4	568 D	155			
	3100	CRIM	1 S	0649	0650	4	7	2		
	180	GORK		0824.2	0824.9	1.8	198			
	180	GORK		0824.2	0825.4		198			
	3100	CRIM	25 R	0905	1045		18			
	650	GORK	21 GRF	0954.8		23				
	1470	BERL	28 GRF	0955	1003.5	25	18			
	3800	BERL	20 GRF	0955	1004.4	95	12			
	10400	BERN	20 GRF	0956.9	1013.5	84	5	14		OPR
	8400	BERN	20 GRF	0956.9	1013.5	84	4	10		OPR
	18400	BERN	20	0956.9	1013.5	84	14			OPR
	8400	BERN	20	0956.9	1013.5	84	10			OPR
	9500	BERL	20 GRF	0956	1016.5	99	15			
	9100	GORK	20 GRF	0957.5	1014.5	55.7	14	8		
	408	TRST	47 GB	1001	1002.2	8.4	100			
	950	GORK	4 SF	1001.4U	1002.1	4.8	3.4			
	650	GORK		1001.9U	1004.3		33			
	650	GORK	46 C	1001.9U	1002.5	4.7	25	12		
	536	ONDR	46 C	1002	1003.8	5	58	49		
	888	ONDR	41 F	1002	1004.2	4.5	13	6		
	930	BORC	8 S	1050.7	1050.7	.1	14	1		
	202	IZMI	41 F	1117	1133.5	21	70			
	536	ONDR	2 S/F	1342.3	1343.2	1.5	17			
	2800	OTTA	8 S	1750	1750.5	.6	5.8			
	7800	SAOP	1 S	1755	1756.3		41			R
	2800	OTTA	1 S	1755.7	1756.5	5	4.6	1.6		
	2800	OTTA	21 GRF	1821	1825	55	6.6	3		
	2800	OTTA	1 S	1823	1823.5	1.5	5.8	2.6		
	2695	BOUL	3 S	1824 E	1825	2.5D	14	5		
	9400	HUAN	20 GRF	1922.7	2000.8	46.1	10.2	5.4		R

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	9400	HUAN	20 GRF	2014.6	2049.5	34.9	6.8	5.6		D
	200	HIRA	44 NS	2145 E	2330	615 D	60	10		MR
23	5730	IRKU	1 S	0441.3	0441.5	1	11			
	5730	IRKU		0633	0643.3		7			
	5730	IRKU		0633	0640.4		8			
	5730	IRKU	3 S	0633	0637	17	6			
	6100	KISV		0633	0637		4			
	6100	KISV	21 GRF	0633	0640.3	13	6			
	100	GORK	43 NS	0642		300 D		5		
	221	ABST	44 NS	0700	0825.8	120	7			
	127	TORN	44 NS	0750 E	1226.5	410 D	7.6	1.5		VD
	260	ONDR	44 NS	0815 E		339 D	34			
	245	SGMR	44 NS	1211 E	1234.8	569 D	52.1			3G
	410	SGMR	44 NS	1211 E	1445	569 D	110			3G
	606	SGMR	43 NS	1434.4	1447	425.6D	41.3			3G
	100	GORK	3 S	0655	0656 U	1.6	120 D			
	3100	CRIM	1 S	0834	0835	2	3	1		
	113	POTS	41 F	0915	0915.1	1.4	150	7		
	100	GORK		0915.3	0916		250			
	100	GORK	46 C	0915.3	0915.5	2.2	250			
	237	TRST	41 F	1021.9	1022	.4	135 D			12R
	202	IZMI	7 C	1022	1022.4	.6	205	120		
	234	POTS	2 S/F	1022	1022.2	.3	250	25		
	113	POTS	41 F	1022	1022	.9	1700	250		
	33	UPIC	45 C	1022.2		.9				
	100	GORK		1022.2	1023.2		230			
	100	GORK	46 C	1022.2	1022.5	1.5	230 D			
	29	UPIC	45 C	1022	1023	1.3				
	29	UPIC	4 S/F	1201.6	1203	2				
	33	UPIC	4 S/F	1202.4	1202.7	1				
	536	ONDR	2 S/F	1236.6	1237.5	1.5	14			
	113	POTS	41 F	1312.1	1312.9	.8	100	2		
	29	UPIC	4 S/F	1312.3	1313.1	1.4				
	33	UPIC	4 S/F	1313.5		1				
	33	UPIC	2 S/F	1334.4	1334.7	.9				
	29	UPIC	2 S/F	1334.6	1335.3	1				
	930	BORD	46 C	1411	1411.2	1.2	245	4		
	29	UPIC	45 C	1442.9	1443.4	1.6				
	33	UPIC	45 C	1442.9	1443.2	1.7				
	930	BORD	41 F	1443	1447	4.3	22	4		
	9400	HUAN	21 GRF	1455.5	1646.9	111.4	10.2	6.6		R
	2800	OTTA	240 R	1500	1535	35	8.4			
	9400	HUAN	3 S	1533.5	1534.8	1.3	23.8	10.4		L
	2695	PENT	2 S/F	1715	1718	9	6.2			
	2800	OTTA	1 S	1755	1755.5	2.5	3.8	1.9		
	2800	OTTA	8 S	1820.3	1820.6	.5	1.4	.7		
	2800	OTTA	1 S	1832	1832.1	1	2.2	1.1		
	9400	HUAN	4 S/F	2001.8	2012.4	10.6	37.4	14		RDL
	2695	PENT	4 S/F	2006	2008.5	5	11.4	3.8		
	9400	HUAN	3 S	2031.4	2032.9	1.5	56.1	29.2		L
	1420	BOUL	3 S	2031.5E	2032.5	2.5D	41	14		
	2800	OTTA	3 S	2031.9	2032.2	2.1	103	34.2		
	4995	BOUL	3 S	2031	2032	3	98	33		
	606	SGMR	3 S	2032	2032.3	2.8	19.5	7.8		3S
	1415	SGMR	3 S	2032	2032.4	1.2	142	56.8		3S
	2695	SGMR	3 S	2032	2032.1	1.4	120	48		3S
	4995	SGMR	3 S	2032	2032.2	1.5	97	38.8		3S
	245	SGMR	48 GB	2032	2032.2	3	1040	416		3S
	410	SGMR	48 GB	2032	2032.2	1.1	1030	412		3S
	2695	BOUL	3 S	2032.5E	2033.5	2.5D	118	40		
	9400	HUAN	29 PBI	2032.9	2048	15.1	13.6	3.9		L
	2800	OTTA	29 PBI	2034	2034	10	4	1.8		
24	15000	KISV	4 S/F	0000	0914		26			
	700	SYDN	45 C	0314.7	0314.9	.5				
	1415	SYDN	1 S	0345.9	0346	.2				
	700	SYDN	4 S	0345.9	0346.2	.4				
	1415	SYDN	1 S	0346.2	0346.3	.2				
	5730	IRKU	1 S	0414.5	0417.5	4	9			
	1415	SYDN	27 RF	0415.5	0417	3.5				
	2695	MANI	4 S/F	0417.3	0420.1	5	21.3	7.1		IG
	1415	MANI	4 S/F	0418.6	0420.7	4.4	19.8	6.6		
	5730	IRKU		0431	0435.3		9			L
	5730	IRKU	1 S	0431	0433.2	6	12			L
	221	ABST	44 NS	0700	0742.5	120	9			
	260	ONDR	44 NS	0800 E		378 D	78			
	410	SGMR	44 NS	1210 E	1243.2	571 D	135			
	606	SGMR	44 NS	1210 E	1300.1	571 D	146			
	245	SGMR	44 NS	1210 E	2106.5	571 D	223			
	3100	CRIM	25 R	0708	0952		10			
	2950	GORK	20 GRF	0812	0817.6	8.2	11	5		
	9100	GORK	20 GRF	0815.1	0824	24.8	9	4		
	9100	GORK	21 GRF	0907.5	0914.5	23.5	9	4		
	10400	BERN	4 S/F	0911.1	0913.8	23	15	43		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	8400	BERN	4	S/F	0911.1	0913.8	23	17	45		
	10400	BERN	4		0911.2	0913.8	23	43			
	8400	BERN	4		0911.2	0913.8	23	45			12L
	536	ONDR	46	C	0911.5	0912.6	3.5	143	11		
	3000	BERL	3	S	0912	0913.9	3	16			
	8800	ATHN	2	GRF	0912	0913.8	7.1	47.8	28.7		
	3100	CRIM	1	S	0912	0913.5	3	11	3		
	2950	GORK	21	GRF	0912	0914.5	8.8	9	4.5		
	650	GORK			0912	0913.8		11			
	650	GORK	45	C	0912	0912.6	6	37			
	950	GORK	4	S/F	0912	0912.7	3.1	18			
	9100	ARCE	4	S/F	0912.3	0914	4				
	2695	ATHN	2	GRF	0912.4	0913.9	6.9	18.1	10.9		
	4995	ATHN	2	GRF	0912.5	0913.8	6.6	23.2	13.9		
	9500	BERL	4	S/F	0912.5	0913.7	2.5	32			
	938	BORD	46	C	0912	0912.8	1	41	4		
	2950	GORK	4	S/F	0913	0914	1.5	18	10		
	237	TRST	41	F	0913.1	0913.2	.2	245			5R
	260	ONDR	8	S	0913	0913	.3	172			
	2650	DWIN	45	C	0913	0914	2	15	10		
	10715	DWIN	45	C	0913	0914	2	20	10		
	6100	KISV			0917.3	0913.1		7			
	6100	KISV	45	C	0917.3	0913.4	18	23			
	100	GORK	8	S	0922	0922.2	.6	220 D			
	113	POTS	2	S/F	0922	0922	.2	200	40		
	237	TRST	41	F	1016.1	1016.9	1.2	305			10R
	202	IZMI	41	F	1017	1025.2	11	95			
	237	TRST	42	SER	1022.3	1023.2	2.7	135			14R
	234	POTS	8	S	1026.9	1027	.1	120	40		
	113	POTS	42	SER	1028.5	1031.1	18	300	1		
	7800	SAOP	21	GRF	1130						
	7800	SAOP	21	GRF	1130						
	7800	SAOP	4	S/F	1130						
	7800	SAOP	4	S/F	1130	1224.7		52			L
	536	ONDR	42	SER	1149	1259.6	74	52			
	237	TRST			1158.5	1159.5		1090			11R
	237	TRST	42	SER	1158.5	1158.8	1.3	275			12R
	234	POTS	41	F	1158.7	1159.5	1	350	6		
	113	POTS	8	S	1159.4	1159.5	.2	100	30		
	202	IZMI	41	F	1159.5	1200.2	1.5	200			
	3100	CRIM	7	C	1217.5	1224	132	16	5		
	9400	HUAN	21	GRF	1220.5	1254.8	34.3	22.6	11.6		0
	1470	BERL	3	S	1222.5	1225.4	4	13			
	3000	BERL	4	S/F	1223	1225.4	6.5	52			
	9500	BERL	20	GRF	1223	1224.9	55	24			
	10400	BERN	3	S	1223.3	1224.6	7.5	5	14		
	10400	BERN	3		1223.3	1224.6	7.5	14			
	4995	ATHN	2	GRF	1223.6	1224.4	10.9	36.7	22		
	9400	HUAN	2	S/F	1223.6	1226.2	2.6	20.9	17.4		L
	2695	ATHN	2	GRF	1223.7	1225	10.3	47.7	28.6		
	808	ONDR	8	S	1223.8	1223.8	.3	72			
	9100	ARCE	3	S	1223.9	1225.2	2.5				
	8800	ATHN	2	GRF	1224	1224.5	10.5	23.6	14.1		
	29	UPIC	45	C	1224.6	1225.6	1.2				
	33	UPIC	45	C	1224.7	1225.7	1.2				
	234	POTS	4	S/F	1224.7	1224.8	.9	100	10		
	930	BORD	45	C	1224	1224.5	2	54	5		
	9100	ARCE	29	PBI	1226.4	1230.9	24				
	408	TRST	42	SER	1242.9	1243.2	.7	270			
	113	POTS	4	S/F	1255	1255.1	.2	100	10		
	9400	HUAN	20	GRF	1310.6	1431	80.4	5.2	1.5		0
	237	TRST	41	F	1328.5	1328.9	.5	150			6R
	2800	OTTA	21	GRF	1859.5	1904	20	2	1		
	2800	OTTA	1	S	1900	1901	2	3.2	1.4		
	2800	OTTA	1	S	1910.5	1912.5	6	9.4	3.2		
	4995	BOUL	3	S	1910.5	1911.5	4.5	11	4		
	1420	BOUL	1	S	1911 E	1912.5	3 D	8	3		
	2695	PENT	20	GRF	2000	2001.5	20	2.4	1.2		
	2695	PENT	1	S	2054	2055.5	4	1.6	.7		
	2695	PENT	20	GRF	2135	2200	60	4	2.2		
	2695	PENT	1	S	2256	2256.5	1.7	6.4	3.2		
25	200	HIRA	43	NS	0250	0720	310 D	65	15		ML
	100	GORK	44	NS	0615 E		305 D		5		
	202	IZMI	43	NS	0700		140	50			
	200	GORK	44	NS	0715 E		90 D		10		
	127	TORH	44	NS	0720 E	0957.3	440 D	140	7		V2
	260	ONDR	44	NS	0818 E		357 D	57	8		
	5730	IRKU			0317	0322		14			
	5730	IRKU	45	C	0317	0317.9	12	2			
	5730	IRKU			0317	0326.8		15			
	5730	IRKU			0317	0327.5		17			
	5730	IRKU			0317	0326.1		13			
	5730	IRKU			0317	0323.1		15			
	35000	MAGO	20	GRF	0326	0332	19	8			

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
	1415	MANI	2	S/F	0327	0327.3	2.4	6.3	2.1		IG
	606	MANI	4	S/F	0327	0327.2	2.6	143.5	33.3		
	5730	IRKU	29	PBI	0329.3		28	10			
	950	GORK	2	S/F	0722.6	0725	3	7.5			
	1415	MANI	3	S/F	0722.7	0724.2	4.9	9.9	3.3		
	650	GORK	40	F	0724	0727.5	8.4	9.5			
	3100	CRIM	3	S	0724.5	0725	1.5	38	10		
	2950	GORK	3	S	0724.7	0725.1	1.4	38	19		
	8800	ATHN	3	S	0724.7	0725	2.9	30.1	9		
	2695	ATHN	3	S	0724.7	0725	1.8	21.7	6.5		
	4995	ATHN	3	S	0724.8	0725	6.7	49	14.7		
	1415	ATHN	3	S	0724.8	0725.1	1.4	13.6	4.1		
	9100	GORK	3	S	0724.8	0725.1	2.8	29	14		
	6100	KISV	4	S/F	0724	0725	7	6			
	606	MANI	1	S	0725.5	0725.7	.6	3.4	1.1		
	4995	MANI	3	S	0725.5	0725.7	2.1	37.7	12.6		I
	2695	MANI	3	S	0725.5	0725.7	2	19.2	6.4		
	15000	KISV	4	S/F	0726	0726	.5	12			
	3100	CRIM	1	S	0728	0729	1.5	11	4		
	950	GORK	1	S	0728.7	0729.3	1.8	6.6	3.3		
	6100	KISV	4	S/F	0821	0821.3	6	3			
	6100	KISV	1	S	0924.5	0925.3	2	2			
	6100	KISV	1	S	0951.1	0951.3	4	3			
	33	UPIC	45	C	0955.9	0957.3	1.8				
	29	UPIC	45	C	0956.1	0957.6	1.8				
	100	GORK	4	SF	0956.2	0957.3	1.5	380			
	100	GORK	41	F	1010.9	1011.4	6	55			
	100	GORK			1010.9	1016.7		180			
	100	GORK			1010.9	1014.4		75			
	200	GORK	8	S	1011.3	1011.5	.4	90			
	29	UPIC	8	S	1016.3	1016.5	.4				
	408	TRST	42	SER	1016.3	1016.5	2.1	180	D		
	237	TRST	41	F	1016.3	1016.5	.2	265			16R
	33	UPIC	8	S	1016.5	1016.6	.5				
	113	POTS	4	S/F	1026.4	1026.5	1.8	1500	60		
	234	POTS	42	SER	1026.4	1026.5	1.8	175	1		
	950	GORK	2	S/F	1040.8	1041.6	1.2	6.6			
	930	BORD	45	C	1041	1041.7	1	15	2		
	7000	SAOP	46	C	1047	1100.4		55			L
	200	GORK	46	C	1055.7	1056.6	7.3	100			
	100	GORK			1055.7	1101.5		970			
	100	GORK			1055.7	1058		95	D		
	100	GORK			1055.7	1056.7	7	100			
	200	GORK			1055.7	1101.8		50			
	650	GORK	4	SF	1055.8	1100.1	7.2	23	5.4		
	650	GORK	4	SF	1055.8	1100.1	7.2	23	5.4		
	10400	BERN	20		1056.1	1100.3	13	16			OPR
	8400	BERN	20		1056.1	1100.3	13	35			OPR
	8400	BERN	20	GRF	1056.1	1100.3	13	13	35		OPR
	10400	BERN	20	GRF	1056.1	1100.3	13	6	16		OPR
	202	IZMI	41	F	1056.5	1056.7	5.7	180			
	237	TRST			1056.6	1059.9		255			14R
	237	TRST	42	SER	1056.6	1056.7	3.8	730			39R
	234	POTS	42	SER	1056.7	1056.7	3.6	420	2		
	113	POTS	46	C	1056.7	1057.8	5.5	200	15		
	1470	BERL	4	S/F	1058	1101.3	4.5	6.3			
	2950	GORK	3	S	1058.4	1059.8	4.1	33	16		
	3100	CRIM	3	S	1058.5	1059.8	4	16	4		
	9100	GORK	1	S	1058.8	1100.3	4.4	24	10		
	4995	ATHN	3	S	1058.8	1100.2	4.5	35.6	10.7		
	1415	ATHN	2	GRF	1058.8	1100.8	5.8	7.7	U	4.3	U
	536	ONOR	46	C	1058	1059.6	4	15	5.6		
	2650	OWIN	1	S	1058	1100	5	15	10		
	3000	BERL	3	S	1059	1100	4	23			
	9500	BERL	3	S	1059	1100.4	6	21			
	2695	ATHN	3	S	1059	1100.4	4.2	16.3	4.9		
	950	GORK	2	S/F	1059.2	1059.4	2.5	3.3			
	9100	ARCE	3	S	1059.3	1100.7	6				
	8800	ATHN	3	S	1059.5	1100.6	3.6	25.5	7.6		
	10715	OWIN	45	C	1059	1100	6	10	5		
	33	UPIC	4	S/F	1101.5	1101.6	.8				
	29	UPIC	4	S/F	1101.6	1102	.7				
	6100	KISV	4	S/F	1101	1104.5	9	23			
	234	POTS	42	SER	1139.5	1145.5	8.6	200	1		
	3100	CRIM	3	S	1142	1144	5	31	10		
	113	POTS	8	S	1145.5	1145.5	.1	100	30		
	2650	OWIN	45	C	1150	1154	6	100	20		
	8800	ATHN	3	S	1151	1154.5	9.3	20.4	6.1		
	2695	ATHN	4	S/F	1151.2	1154.1	11.7	78.2	23.5		
	7000	SAOP	4	S/F	1151.5	1154		30			L
	9500	BERL	1	S	1152	1154	2.5	10			
	3000	BERL	3	S	1152	1153.6	6	50			
	4995	ATHN	3	S	1152	1154.3	12.5	48.3	14.5		
	2950	GORK	3	S	1152.8	1153.7	3.5	47	23		
	6100	KISV	4	S/F	1152	1154.4	8	17			

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	1478	BERL	1 S	1153	1154	2	4.6			
	9400	HUAN	4 S/F	1153	1154.8	1.8	23.6	6.7		L
	9100	ARCE	1 S	1153.5	1154.1	1.4				
	9100	GORK	1 S	1155.7	1156.5	2.8	11.5	5.5		
	113	POTS	4 S/F	1205.6	1205.7	.6	100	15		
	234	POTS	8 S	1206.5	1206.6	.3	420	140		
	408	TRST	45 C	1246.7	1246.8	.4	520			
	113	POTS	8 S	1247	1247.1	.1	100	30		
	2650	DWIN	45 C	1415		35	120 D			
	7000	SAOP	46 C	1416	1417.8		9			L
	8800	ATHN	4 S/F	1416	1418.1	18.4	96.7	29		
	8400	BERN	4	1416.2	1417.9	9	83			OPR
	10400	BERN	4	1416.2	1417.9	9	42			OPR
	8400	BERN	4 S/F	1416.2	1417.9	9	31	83		OPR
	10400	BERN	4 S/F	1416.2	1417.9	9	14	42		OPR
	4995	ATHN	4 S/F	1416.3	1418.2	18.2	157.5	47.2		
	2695	ATHN	4 S/F	1416.5	1417.9	8.2	274.4	82.3		
	9400	HUAN	4 S/F	1416.6	1419.3	2.7	64	37.7		L
	9100	ARCE	4 S/F	1416.7	1418.1	3.5				
	1415	ATHN	3 S	1416.8	1418.6	8.2	24.9U	7.5U		
	10715	DWIN	45 C	1416	1418	28	40	10		
	9400	HUAN	29 PBI	1419.3	1458.3	39	16.8	9.1		L
	9100	ARCE	29 PBI	1420.2		17				
	2800	OTTA	21 GRF	1440 E		30 D	6.4			
	2800	OTTA	4 S/F	1441	1445	5	10.2	2.6		
	410	SGMR	43 NS	1720	2113	262 D	6.5			
	2695	PENT	20 GRF	2010	2053	130	7	3.6		
26	5730	IRKU	1 S	0552	0554	3	10			
	5730	IRKU		0552	0554.7		10			
	234	POTS	8 S	0752.7	0752.8	.1	120	40		
	3180	GRIM	21 GRF	0805	1002	265	12	3		
	260	ONDR	44 NS	0842 E		338 D	94	6		
	282	IZMI	43 NS	1015		105	50			
	3180	GRIM	1 S	0902.5	0903	1.5	4	1		
	234	POTS	42 SER	0908.5	0908.6	4.6	120	1		
	234	POTS	42 SER	1012.5	1012.5	9.5	140	1		
	536	ONDR	3 S	1045.8	1045.8	.2	14			
	536	ONDR	2 S/F	1056.8	1057.2	1	26	10		
	29	UPIC	42 SER	1113.4	1137	25				
	33	UPIC	42 SER	1113.6	1136.5	24.8				
	113	POTS	8 S	1113.6	1113.7	.1	300	100		
	7800	SAOP	24 R	1127						B
	9500	BERL	1 S	1142.5	1143.3	1.5	7.1			
	3080	BERL	3 S	1142.5	1143.5	1.5	11			
	2695	ATHN	3 S	1142.8	1143.6	10.4	9.5	2.6		
	4995	ATHN	3 S	1142.9	1143.2	3.7	8.8	2.6		
	1478	BERL	4 S/F	1143	1144.4	2	15			
	9100	ARCE	1 S	1143.2	1143.4	1.8				
	1415	ATHN	3 S	1143.2	1143.4	1.9	18.5U	5.5U		
	930	BORD	46 C	1143.3	1143.5	.4	143	3		
	536	ONDR	8 S	1143.3	1143.3	.3	221			
	237	TRST	46 C	1143.5	1143.6	.5	2095	85		SR
	408	TRST	45 C	1143.5	1143.6	1.1	120 D			
	234	POTS	2 S/F	1143.6	1143.7	.6	1400	280		
	260	ONDR	8 S	1143.8	1143.8	.3	199			
	6100	KISV	45 C	1143	1143.1	1	5			
	3180	GRIM	1 S	1144	1145	2	8	2		
	245	SGMR	44 NS	1208 E	1901.2	576 D	165			3G
	410	SGMR	44 NS	1208 E	1733.1	576 D	25.1			3G
	7800	SAOP	40 F	1325						
	113	POTS	42 SER	1411	1412	5.6	1400	70		
	7800	SAOP	8 S	1411.8	1412.1	.3	38			L
	8400	BERN	8 S	1411.9	1412.1	.4	5	14		OPR
	10400	BERN	8 S	1411.9	1412.1	.4	4	10		OPR
	8400	BERN	8	1411.9	1412.1	.4	14			OPR
	10400	BERN	8	1411.9	1412.1	.4	10			OPR
	237	TRST	5 S	1412.3	1412.4	.3	56	3		4R
	9100	ARCE	1 S	1412	1412.3	.8				
	9400	HUAN	20 GRF	1421.8	1457	35.2	6.4	2.6		L
	2800	OTTA	20 GRF	1600	1625	50	3.4	1.7		
	2800	OTTA	1 S	1752	1754	10	3.8	1.9		
	9400	HUAN	20 GRF	1901.7	1943.3	41.6	3.2	1.4		B
	2800	OTTA	240AR	2020	2050	30	3.8	1.9		
	2800	OTTA	20 GRF	2029	2032	11	4	2		
	200	HIRA	43 NS	2300	0605	540 D	75	15		NRNL
27	221	ABST	44 NS	0600	0805.8	180	16			
	200	GORK	44 NS	0600 E		348		5		
	282	IZMI	44 NS	0700		300	65			
	100	GORK	43 NS	0711		70		5		
	127	TORN	44 NS	0720 E	0806.3	440 D	630	3		V1
	260	ONDR	44 NS	0836 E		326 D	202	10		
	245	SGMR	44 NS	1207 E	1843.7	578 D	755			3.5,SWF
	410	SGMR	44 NS	1207 E	1946.4	578 D	45.1			3.5,SWF

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	200	HIRA	44 NS	2145 E	2330	615 D	60	20		HR
	100	GORK	41 F	0602.2	0602.8	4.5	70			
	100	GORK		0602.2	0605.9		70 D			
	100	GORK	41 F	0627.2	0629.5	31	135			
	100	GORK	41 F	0627.2	0639.4		140 D			
	100	GORK		0627.2	0638.2		140 D			
	100	GORK		0627.2	0659		140 D			
	100	GORK		0627.2	0652.6		140 D			
	100	GORK		0627.2	0651.4		140 D			
	3100	CRIM	25 R	0715	0733		7			
	3100	CRIM	1 S	0743	0743.2	.5	3	1		
	113	POTS	4 S/F	0756.3	0756.3	.5	200	20		
	100	GORK	8 S	0756.7	0756.8	.3	180 D			
	202	IZMI	45 C	0805.8	0806	1.3	760	300		
	237	TRST	41 F	0806	0806.4	.8	2490			23R
	234	POTS	4 S/F	0806	0806.4	.9	1400	120		
	113	POTS	4 S/F	0806.1	0806.1	.9	700	35		
	930	BORD	46 C	0806.2	0806.5	.6	50	3		
	100	GORK	45 C	0806.5	0806.7	1	185 D			
	100	GORK		0806.5	0806.9		185 D			
	3100	CRIM	20 GRF	0821	0830	70	7	2		
	6100	KISV	20 GRF	0827	0830	48	6			
	15000	KISV	20 GRF	0827	0834	39	8			
	9100	GORK	20 GRF	0828.6	0840.8	31.4	8.5	4		
	237	TRST	41 F	0848.8	0849.5	1.2	525			D
	234	POTS	42 SER	0848.9	0849.5	0.6	175	1		
	930	BORD	46 C	0924.5	0924.8	1	80	3		
	237	TRST	47 GB	0924.7	0924.8	.5	200			43R
	234	POTS	42 SER	0948.5	0950.2	6.7	280	4		
	113	POTS	2 S/F	0954.8	0954.9	.4	1400	100		
	203	GORK	8 S	1000	1008	1.1	45 D			
	100	GORK	45 C	1001.5	1001.5	.9	250			
	100	GORK		1001.5	1002		290			
	113	POTS	2 S/F	1002.1	1002.4	.7	20000	70		
	234	POTS	2 S/F	1002.1	1002.4	.7	3500	350		
	237	TRST	41 F	1002.2	1002.5	.6	6080			27R
	408	TRST	41 F	1002.2	1002.5	.8	320 D			
	930	BORD	41 F	1002.4	1002.5	.4	17	2		
	6100	KISV	20 GRF	1033	1037	17	4			
	9100	GORK	20 GRF	1036.5	1039.8	8.3	6	2.5		
	234	POTS	8 S	1045.9	1045.9	.4	240	12		
	113	POTS	46 C	1054.3	1054.9	1.3	1000	70		
	33	UPIC	42 SER	1054.4		36.4				
	100	GORK		1054.7	1055.4		310 D			
	100	GORK	46 C	1054.7	1055.1	1.7	310			
	29	UPIC	42 SER	1054	1120.7	37				
	7000	SAOP	4 S/F	1057.3	1058.5		28			L
	4995	ATHN	2 GRF	1057.9	1058.5	1.9	16.7	10		
	6100	KISV	8 S	1057	1058.1	8	12			
	2650	DWIN	1 S	1057	1058	2	10	5		
	1470	BERL	1 S	1058	1058.4	1	7.1			
	3000	BERL	3 S	1058	1058.5	1	12			
	9500	BERL	1 S	1058	1058.8	1	4.4			
	2695	ATHN	2 GRF	1058.1	1058.5	2.1	9.9	6		
	9100	GORK	1 S	1058.5	1059	.9	10	5		
	200	GORK	41 F	1106	1106.8	10	40 D			
	200	GORK		1106	1119.5		40 D			
	200	GORK		1106	1113.5		40 D			
	113	POTS	42 SER	1112	1120.5	29	9000	80		
	234	POTS	42 SER	1112.6	1120.5	9.3	4000	40		
	237	TRST	41 F	1112.6	1112.8	.4	420			36R
	930	BORD	45 C	1112.7	1113	.3	18	2		
	237	TRST	41 F	1118.3	1118.7	.7	1870			43R
	202	IZMI	45 C	1118.5	1118.8	.5	400	200		
	930	BORD	45 C	1118.5	1118.7	.5	50	2		
	100	GORK		1119.1	1121.2U		310 D			
	100	GORK	41 F	1119.1	1119.6	4.3	310 D			
	100	GORK		1119.1	1122.1		310 D			
	202	IZMI	4 GB	1120.2	1120.2	.7	1360	700		
	237	TRST	41 F	1120.4	1120.5	.4	9070			27R
	408	TRST	45 C	1120.4	1120.6	.7	110 D			
	930	BORD	45 C	1120.4	1120.4	.5	22	3		
	100	GORK	45 C	1135.4	1135.5	.6	300			
	100	GORK		1135.4	1135.7		300 D			
	100	GORK	8 S	1140.9	1141	.3	300			
	237	TRST	42 SER	1209.2	1209.7	6.6	520			72R
	237	TRST		1209.2	1215.6		890			35R
	237	TRST		1209.2	1214.6		28500			21R
	237	TRST		1209.2	1211.2		935			34R
	29	UPIC	42 SER	1209.4	1215	36.9				
	113	POTS	42 SER	1209.4	1214.6	12	14000	200		
	234	POTS	42 SER	1209.6	1214.6	6.5	18000	250		
	33	UPIC	42 SER	1209.6		36.7				
	408	TRST	41 F	1214.4	1214.8	.6	140			
	930	BORD	45 C	1215.4	1215.6	.4	26	2		

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	113	POTS	8 S	1259.4	1259.4	.1	100	30		
	237	TRST	1 F	1358	1358.4	.7	503			6L
	7800	SAOP	40 F	1552	1558		18			L
	930	BORD	46 C	1557.5	1557.9	3	198	11		
	2800	OTTA	2 S/F	1557.5	1558	2	9.6	2.4		
	1420	BOUL	45 C	1557.5E	1558	2.5D	26	9		
	2695	BOUL	3 S	1558.5E	1559.5	2 D	11	4		
	2800	OTTA	1 S	1715.5	1716.2	1	3.2	1.6		
	7800	SAOP	46 C	1739	1749.3		11			R
	2695	PENT	240 R	1745	1825	40	3.8	1.9		
	9480	HUAN	21 GRF	1759.5	1909.6	70.1	25.3	15.6		0
	2800	OTTA	21 GRF	1837	1846	23	3.8	1.9		
	4995	BOUL	3 SF	1847	1849	3.5	33	11		
	410	SGMR	6 S	1848	1848.9	5	74.2	29.7		
	606	SGMR	3 S	1848	1848.5	1.5	81.3	32.5		
	9480	HUAN	4 S/F	1848.2	1850.3	2.1	27	17.9		R
	1420	BOUL	3 S	1848.5E	1849	2.5D	13	4		
	2800	OTTA	4 S/F	1848	1849.3	2.5	16	7.8		
	2695	BOUL	3 S	1849 E	1850.5	3 D	13	4		
	1420	BOUL	3 S	1851 E	1851.1	1 D	13	4		
	2695	PENT	21 GRF	1918	2050	230 D	16			
	2695	PENT	1 S	2229.5	2229.8	1.5	4	2		
	2695	PENT	20 GRF	2237	2239	13	5.2	3		
	2695	PENT	8 S	2325.5	2325.8	.5	24	12		
28	2695	MANI	3 S	0306.1	0307.1	2.6	26	8.6		
	606	MANI	8 S	0306.7	0307	.6	463.7	154.6		
	1415	MANI	3 S	0306.7	0307.2	2.3	8	2.7		
	4995	MANI	1 S	0306.8	0307.2	1	3.5	1.2		
	4995	MANI	3 S	0522.7	0523	1	157.1	52.4		
	1415	MANI	3 S	0522.7	0523	1	18.7	6.2		
	2695	MANI	3 S	0522.7	0523	1	133.2	44.4		
	8800	MANI	8 S	0522.7	0522.9	.6	322.7	107.6		I
	100	GORK	44 NS	0556 E		364 D		15		
	200	GORK	44 NS	0600 E		354 D		5		
	221	ABST	44 NS	0700	0757.5	120	16			
	127	TORN	44 NS	0720 E	1323.5	440 D	15	10		V1
	260	ONDR	44 NS	0828 E		364 D	208 D	9		
	245	SGMR	44 NS	1206 E	1215.4	580 D	484			3G
	410	SGMR	44 NS	1206 E	1227.6	580 D	151			3G
	606	SGMR	44 NS	1206 E	1921.2	580 D	78			3G
	200	HIRA	44 NS	2145 E	0535	615 D	30	10		HR
	200	GORK		0612.5	0617		170			
	200	GORK	46 C	0612.5	0614.3	5	30 D			
	100	GORK		0614.1	0617.1		1750			
	100	GORK	41 F	0614.1	0614.5	1.2	2000			
	6100	KISV	8 S	0803.2	0803.2	1	3			
	9100	GORK	2 SF	0803.3	0803.4	1.1	13	5.5		
	237	TRST	47 GB	0838.5	0838.8	1.5	480			17R
	6100	KISV	1 S	0914	0915	2	4			
	9100	GORK	1 S	0919.6	0919.9	1.5	6.5	3		
	536	ONDR	42 SER	0946.8	0950.5	24	14			
	237	TRST	41 F	0957.4	0957.7	.6	3750			29R
	234	POTS	2 S/F	0957.5	0957.7	.7	5000	200		
	100	GORK	8 S	0957.5	0958 U	1.2	380 D			
	200	GORK	8 S	0957.5	0957.8	.8	40 D			
	650	GORK	3 S	0957.6	0957.6	.2	19	9.5		
	113	POTS	2 S/F	0957.6	0957.8	.9	4200	1000		
	408	TRST	7 C	0957.6	0957.7	.4	380 D			
	237	TRST	46 C	1010.5	1010.5	.1	565	18		11R
	234	POTS	2 S/R	1010.5	1010.5	.1	210	50		
	408	TRST	8 S	1035.3	1035.3	.1	110			
	237	TRST	47 GB	1040	1041	2	360			39R
	650	GORK	3 S	1041.7	1042	.5	36	18		
	6100	KISV	1 S	1055.5	1056	1	4			
	237	TRST	41 F	1214.7	1215.7	1.1	2680			36R
	234	POTS	42 SER	1214.7	1215.5	15	1000	1		
	930	BORD	41 F	1226.7	1227.6	1.3	25	2		
	113	POTS	2 S/F	1226.9	1227.6	2.8	300	10		
	408	TRST	41 F	1227.3	1227.5	1.2	410			
	237	TRST	41 F	1227.3	1227.5	.5	1640			27R
	536	ONDR	41 F	1227.5	1252	29	29	1		
	237	TRST	41 F	1228.1	1228.2	.5	300			35R
	237	TRST	47 GB	1242.2	1242.7	.8	500			25R
	930	BORD	8 S	1242.6	1242.6	.2	52	1		
	410	SGMR	6 S	1250.1	1251	1.7	157	47.1		
	245	SGMR	48 GB	1250.2	1251.1	2.4	901	270		
	408	TRST	45 C	1250.3	1250.9	2.1	480			
	606	SGMR	3 S	1250.5	1251.8	5.4	27.6	8.9		
	930	BORD	45 C	1250.6	1252	4.4	51	5		
	234	POTS	2 S/F	1250.6	1250.9	2.3	14000	3000		
	1470	BERL	3 S	1250.7	1251.1	3.3	9.5			
	237	TRST	47 GB	1250.7	1250.8	3.7	9065			9R
	237	TRST		1250.7	1252.2		1380			36R
	2695	ATHN	2 GRF	1250.7	1251	1.6	3.2	1.9		

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	1415	ATHN	2	GRF	1250.8	1251	1.5	12.4	7.4		
	113	POTS	2	S/F	1250.8	1250.9	1.8	80000	9999		
	237	TRST	41	F	1301.2	1301.4	.6	930			0
	7000	SAOP	4	S/F	1307.6	1309.3	18.4	9			L
	7000	SAOP	41	F	1307.6						
	9500	BERL	29	PBI	1308	1309	22	127			
	10400	BERN	46	C	1308.3	1309.2	17	49	143		OPR
	10400	BERN	46		1308.3	1309.2	17	143			OPR
	9100	ARCE	4	S/F	1308.6	1309.4	3.4				
	8800	ATHN	4	S/F	1308.8	1309.5	14.5	155.1	46.5		
	8800	SGMR	3	S	1308.8	1309.1	2.2	150.1	45		
	15400	SGMR	3	S	1308.8	1309.1	2	167	50.1		
	4995	SGMR	3	S	1308.8	1309.1	2.2	24.8	7.4		
	4995	ATHN	3	S	1308.9	1309.3	13.9	30	18		
	10715	OWIN	45	C	1308	1309	22	130	20		
	9100	ARCE	29	PBI	1312		18.4				
	7000	SAOP	20	GRF	1335						0
	237	TRST	41	F	1357.9	1358	.1	350			0
	930	BORD	41	F	1411.6	1411.8	.8	20	2		
	7000	SAOP	4	S/F	1421	1422		53			R
	10400	BERN	3	S	1421.2	1421.9	6	6	19		OPR
	10400	BERN	3		1421.2	1421.9	6	19			OPR
	9400	HUAN	3	S	1421.4	1427.2	5.8	28.5	7.8		ROL
	8800	ATHN	3	S	1421.5	1422	3.6	31	9.3		
	4995	ATHN	3	S	1421.6	1422.1	3.2	32.5	9.8		
	4995	SGMR	3	S	1421.6	1421.9	1.6	60	18		
	8800	SGMR	3	S	1421.6	1421.8	1.6	24.8	7.4		
	2695	ATHN	3	S	1421.7	1422	2.8	16.1	4.8		
	2800	OTTA	1	S	1421.7	1422.1	1.5	9.6	3.2		
	9100	ARCE	3	S	1421.7	1422.2	3.5				ATM ATT
	10715	OWIN	1	S	1421	1422	3	28	10		
	2650	OWIN	1	S	1421	1422	2	10	5		
	15400	SGMR	1	S	1422.5	1422.8	.6	9.4	2.8		
	237	TRST	47	GB	1435	1435.1	1.9	955			29R
	237	TRST			1435	1436.5		505			17R
	930	BORD	8	S	1435	1435	.2	25	1		
	7000	SAOP	20	GRF	1438						0
	930	BORD	46	C	1438.7	1439.1	.5	83	4		
	2800	OTTA	1	S	1517.5	1518.2	1.5	2.6	1.3		
	9400	HUAN	1	S	1638.2	1640.2	2	9.5	6.3		R
	7000	SAOP	2	S/F	1731.2	1732.6	.6	42			L
	9400	HUAN	4	GRF	1803.2	1807.4	4.2	58.7	24.8		R
	2695	SGMR	3	S	1803.5	1805.2	2.3	11.4	3.4		
	245	SGMR	48	GB	1803.8	1804.8	1.7	528	158		
	4995	BOUL	3	SF	1803	1804.5	3.5	51	17		
	15400	SGMR	3	S	1804	1805.1	2.8	39	11.7		
	4995	SGMR	3	S	1804.1	1805.1	2.4	48.6	14.6		
	606	SGMR	3	S	1804.1	1805.2	3.3	12.2	3.7		
	1415	SGMR	3	S	1804.2	1805.2	1.9	21.8	6.5		
	410	SGMR	6	S	1804.2	1808.2	5	17.8	5.3		
	8800	SGMR	3	S	1804.5	1805.2	2.3	66.5	20		
	1420	BOUL	3	S	1804 E	1805.5	3 D	23	8		
	2695	BOUL	1	S	1805.5E	1806.5	2 D	9	3		
	7000	SAOP	3	S	1822.8	1823.2	.8	71			L
29	4995	MANI	4	S/F	0204	0206.4	4	27.5	9.2		
	1415	MANI	2	S/F	0204	0205.4	3.7	5.2	1.7		
	2695	MANI	4	S/F	0204.9	0205.1	2.5	20.2	6.7		
	100	GORK	44	NS	0554 E		96 D		10		
	200	GORK	44	NS	0600 E		90		5		
	127	TORN	44	NS	0720 E	1138.6	440 D	85	14		V1
	260	ONDR	44	NS	0815 E		387 D	155	6		
	245	SGMR	44	NS	1205	1334.7	583 D	236			3G
	410	SGMR	44	NS	1205	2052.8	583 D	67.5			3G
	221	ABST	45	C	0608.5	0609	3	43	16		
	5730	IRKU	1	S	0608.5	0609.4	1.5	9			
	6100	KISV	1	S	0608	0609.2	2	3			
	200	GORK	8	S	0609	0609 U	1.4	65 D			
	6100	KISV	2	S/F	0828	0831	7	3			
	408	TRST	42	SER	1029.8	1034.7	18.1	120 D			
	3100	CRIM	1	S	1140	1148.5	1	16	4		
	8800	ATHN	2	GRF	1143.4	1147.8	7.9	15.5	9.3		
	1415	ATHN	3	S	1147	1148.5	6.1	30.1	9		
	2695	ATHN	3	S	1147.4	1148.5	2.9	19.3	5.8		
	113	POTS	4	S/R	1147.5	1148.6	3	28000	1400		
	4995	ATHN	3	S	1147.8	1148.6	2.9	7.4	2.2		
	234	POTS	2	S/R	1147.9	1148.5	1	1400	25		
	1470	BERL	3	S	1148	1148.6	2	23			
	3000	BERL	3	S	1148	1148.5	1.5	22			
	408	TRST	45	C	1148	1148.2	1	160 D			
	127	TORN	47	GB	1148.2	1148.5	1	1200	420		
	930	BORD	45	C	1148.2	1148.7	2.8	80	5		
	33	UPIC	4	S/F	1148.7		1.4				
	29	UPIC	2	S/F	1148.8	1148.9	1.1				
	808	ONDR	45	C	1148	1148.6	1.5	90	25		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	2650	DWIN	1	S	1148	1148.5	1	25	10		
	237	TRST	41	F	1149	1149.5	1	1950			29R
	127	TORN	8	S	1205.7	1205.8	.5	230	110		
	234	POTS	8	S	1205.7	1205.9	.3	158	50		
	113	POTS	2	S/R	1205.7	1205.9	.5	1400	250		
	3100	CRIM	1	S	1212	1215	17	7	2		
	536	ONDR	42	SER	1333	1405.5	53	42			
	237	TRST	41	F	1335.6	1335.7	.4	410			0
	808	ONDR	4	S/F	1338.4	1338.4	.6	78			
	410	SGMR	6	S	1338.4	1338.5	.9	37.5	15		3G
	686	SGMR	3	S	1338.4	1338.5	.6	122	48.8		3G
	245	SGMR	6	S	1338.4	1338.5	1	60.7	24.3		3G
	930	BORD	45	C	1338.6	1338.6	.4	194	2		
	234	POTS	42	SER	1344.6	1349.6	5.2	280	1		
	127	TORN	45	C	1348.4	1349.6	2.3	330	30		
	113	POTS	4	S/F	1349.2	1349.7	1	2000	400		
	237	TRST	41	F	1350.2	1350.6	.7	740			35R
	606	SGMR	3	S	1417.8	1429	47.2	52.1	16		
	8800	SGMR	3	S	1427.9	1428.2	1.5	122	37		
	2800	OTTA	4	S/F	1601.5	1602.5	5	18	6		
	4995	BOUL	1	S	1601	1603	4	10	3		
	1420	BOUL	3	S	1602 E	1603.5	4.5D	12	4		
	2695	BOUL	3	S	1603 E	1603.5	2.5D	24	8		
	4995	SGMR	3	S	1647	1650.7	8.5	23.4	7		
	4995	BOUL	3	S	1648	1650.5	5.5	23	8		
	7800	SAOP	46	C	1649	1650.8		32			R
	8800	SGMR	3	S	1649.6	1650.8	3.4	19.4	5.8		
	2800	OTTA	1	S	1649	1650.5	6	9.4	3		
	2695	SGMR	3	S	1650	1651	1	10.6	3.2		
	7800	SAOP	4	S/F	1734.6	1735.6	1.6	38			L
	2800	OTTA	8	S	1735.4	1735.7	.5	1.6	.8		
	2800	OTTA	20	GRF	1950	1956	30	2.6	1.3		
	2695	PENT	1	S	2139	2139.7	1	5.2	2.6		
	2695	PENT	29	PBI	2140		8	2	1		
30	127	TORN	44	NS	0720 E	1132.4	440 D	84	2		V0
	221	ABST	44	NS	0800	0836	60	18			
	268	ONDR	44	NS	0822 E		346 D	18			
	245	SGMR	43	NS	1425	1425.2	444 D	484			
	410	SGMR	43	NS	1425	1432.8	444 D	271			
	8800	ATHN	1	F	0919.7	0925	8.1	60.1	30.1		
	6100	KISV	4	S/F	1054	1054.2	1	2			
	2950	GORK	21	GRF	1103.6	1105.2	14.2	8	4		
	2950	GORK	4	SF	1105.5	1106.7	4.2	39			
	3100	CRIM	3	S	1106	1109	15	23	7		
	3000	BERL	29	PBI	1106	1109.3	14	36			
	2650	DWIN	45	C	1106	1109	6	40	20		
	7800	SAOP	4	S/F	1107.4	1109	4	27			R
	1470	BERL	20	GRF	1107.5	1110	7.5	3.5			
	2695	ATHN	3	S	1107.7	1108.3	7.1	5.9	1.8		
	6100	KISV	29	PBI	1107	1110	50	5			
	6100	KISV	45	C	1107	1109	3	12			
	4995	ATHN	3	S	1108	1109.7	3.5	26.7	8		
	8800	ATHN	4	S/F	1108	1109.2	3.3	72.4	21.7		
	9500	BERL	20	GRF	1108	1109.5	72	7.4			
	237	TRST	41	F	1231	1231.1	.3	68			0
	237	TRST	42	SER	1425	1425.1	7.8	1185			7R
	237	TRST			1425	1432.7		320			35R
	237	TRST			1425	1429.3		315			45R
	2695	PENT	8	S	1425	1425.3	.5	3.2	1.6		
	2800	OTTA	20	GRF	1527	1538	30	3.8	2		
	2800	OTTA	21	GRF	1600		160	4.6	2.6		
	2800	OTTA	8	S	1650	1650.3	.8	4.4			
	2800	OTTA	2	S/F	2054.2	2054.5	1	4.6			
	200	HIRA	24	R	2140 E	0320	630 D	50	20		ML
31	127	TORN	44	NS	0720 E	0846.2	440 D	110	16		V0
	268	ONDR	44	NS	0813 E		371 D	40			
	221	ABST	43	NS	0828	0850	25	8			
	410	SGMR	43	NS	1332	1455.3	498 D	44.4			
	245	SGMR	43	NS	1332.1	1941.4	497.9D	41.1			
	237	TRST	41	F	0928.2	0928.7	.8	320			7L
	237	TRST	41	F	0924	0924.2	.3	370			0
	33	UPIC	45		1010.9	1011.5	.7				
	536	ONDR	8	S	1011.7	1011.7	.2	153			
	29	UPIC	2	S/F	1011	1011.4	.5				
	408	TRST	41	F	1142.4	1142.4	3.1	93			
	237	TRST	41	F	1143.6	1143.6	.1	290			16L
	536	ONDR	2	S/F	1406	1406.8	1	49			
	237	TRST	42	SER	1409.3	1409.4	1.2	710			85R
	2800	OTTA	21	GRF	1442	1521	140	18	5.6		
	2800	OTTA	3	S	1443	1445.5	9	16.8	5.6		
	2650	DWIN	1	S	1443	1445	7	20	10		
	2800	OTTA	2	S/F	1502	1504	6	4.4	2.2		
	2800	OTTA	22	GRF	1601.5	1611	11	2.2	1.1		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JANUARY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
[	2800	OTTA	1 S	1613.5	1617	6.5	4.4	2.6		
[	4995	BOUL	1 S	1614	1616	5	10	3		
[	2800	OTTA	21 GRF	1800	1825	95	3	1.5		
[	2800	OTTA	1 S	1917	1917.3	1	2.8	1.4		
	2800	OTTA	1 S	1942	1945	6	1.8	.9		
	2800	OTTA	22 GRF	2045	2137	135	5.4	3.9		

Reports received from the following observatories:

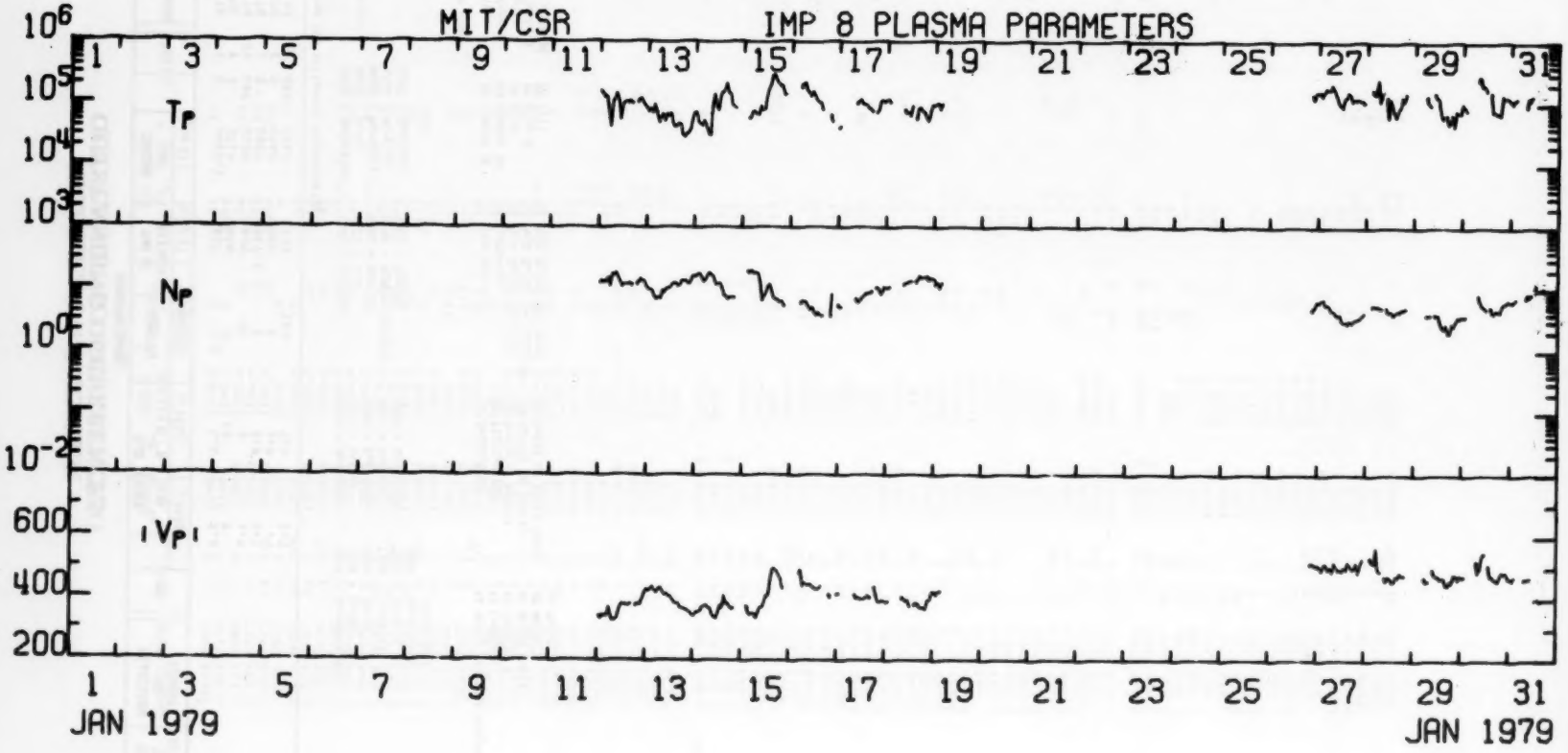
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

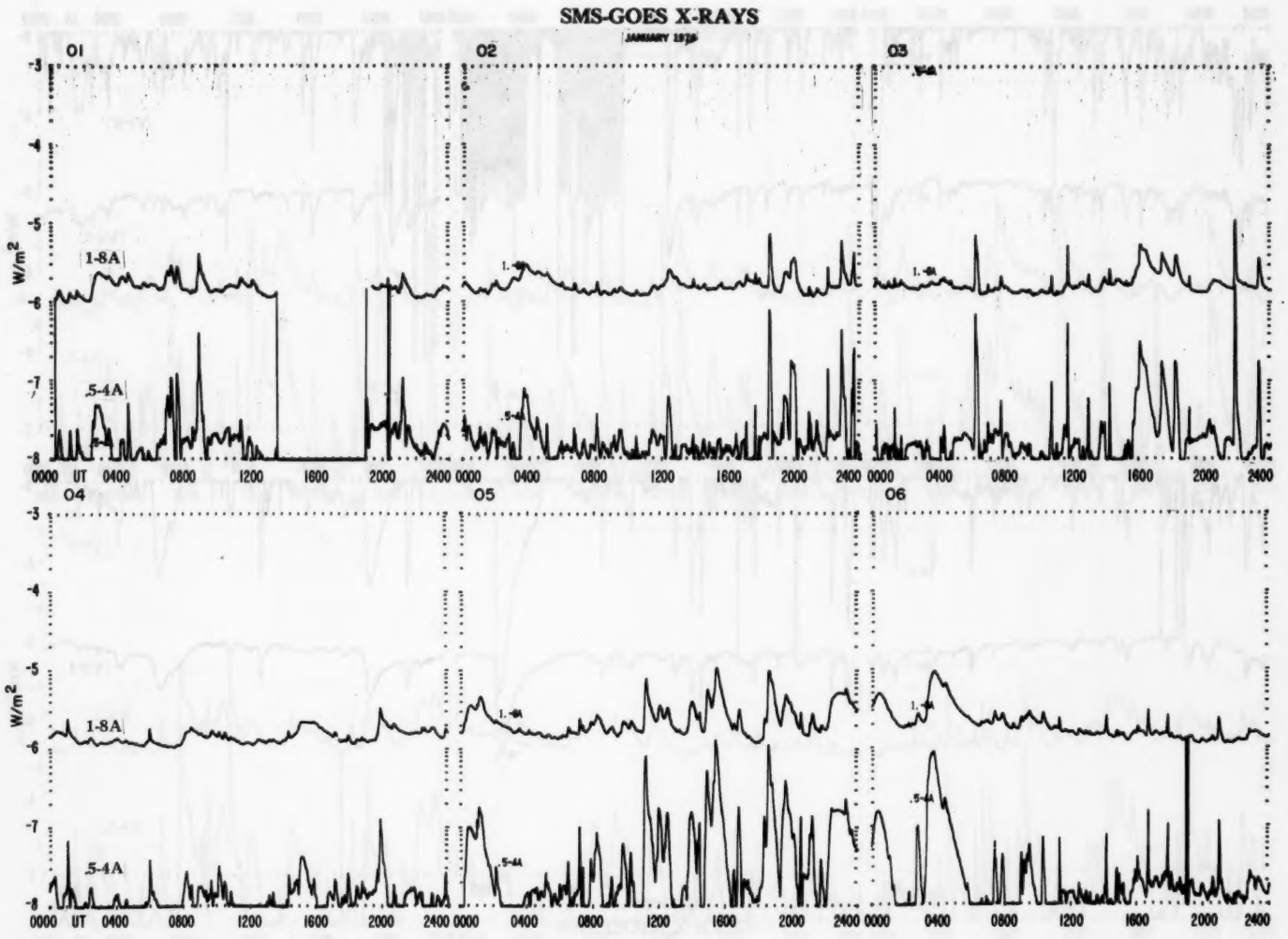
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

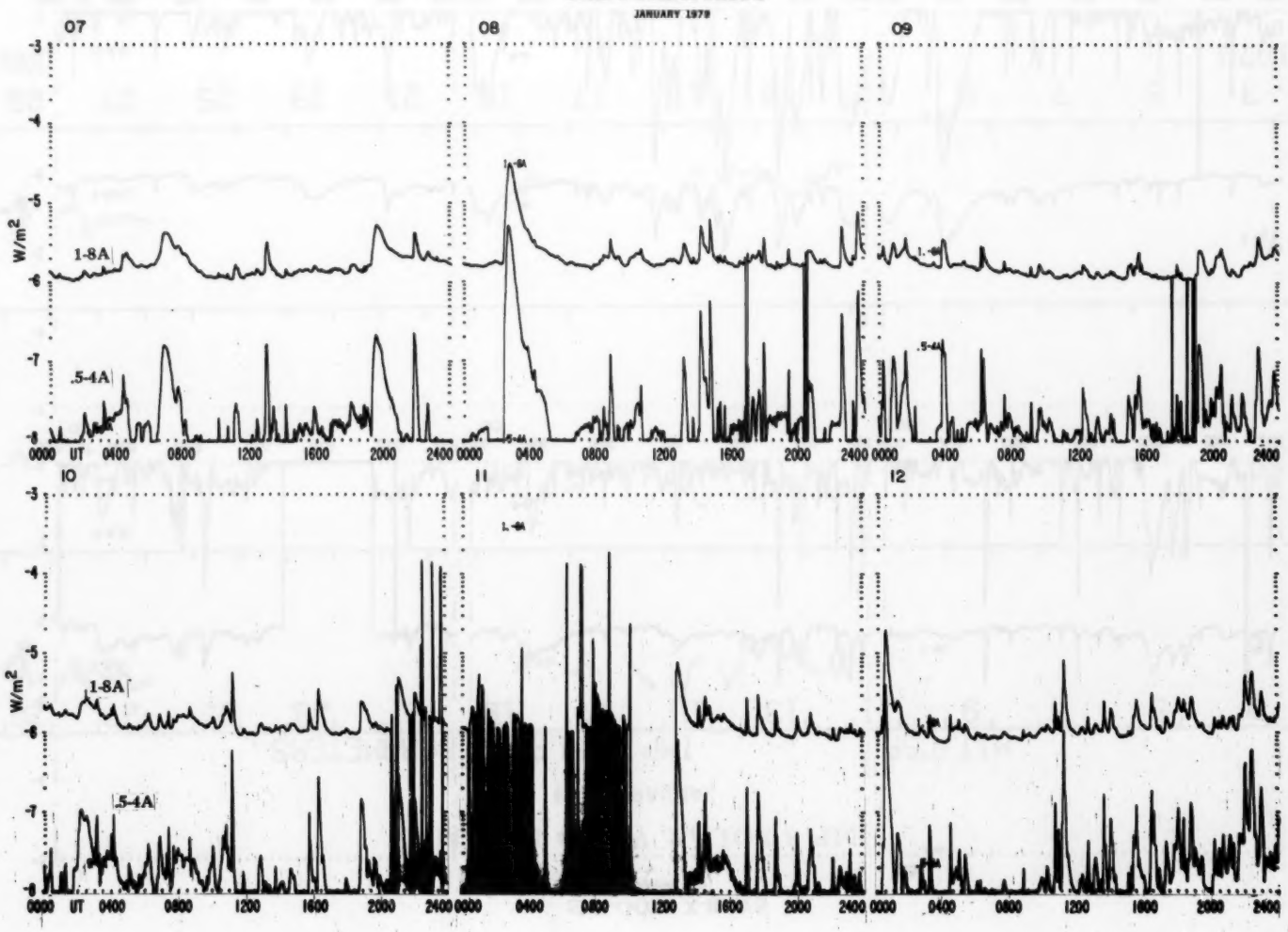
IMP 8 SOLAR WIND PLASMA

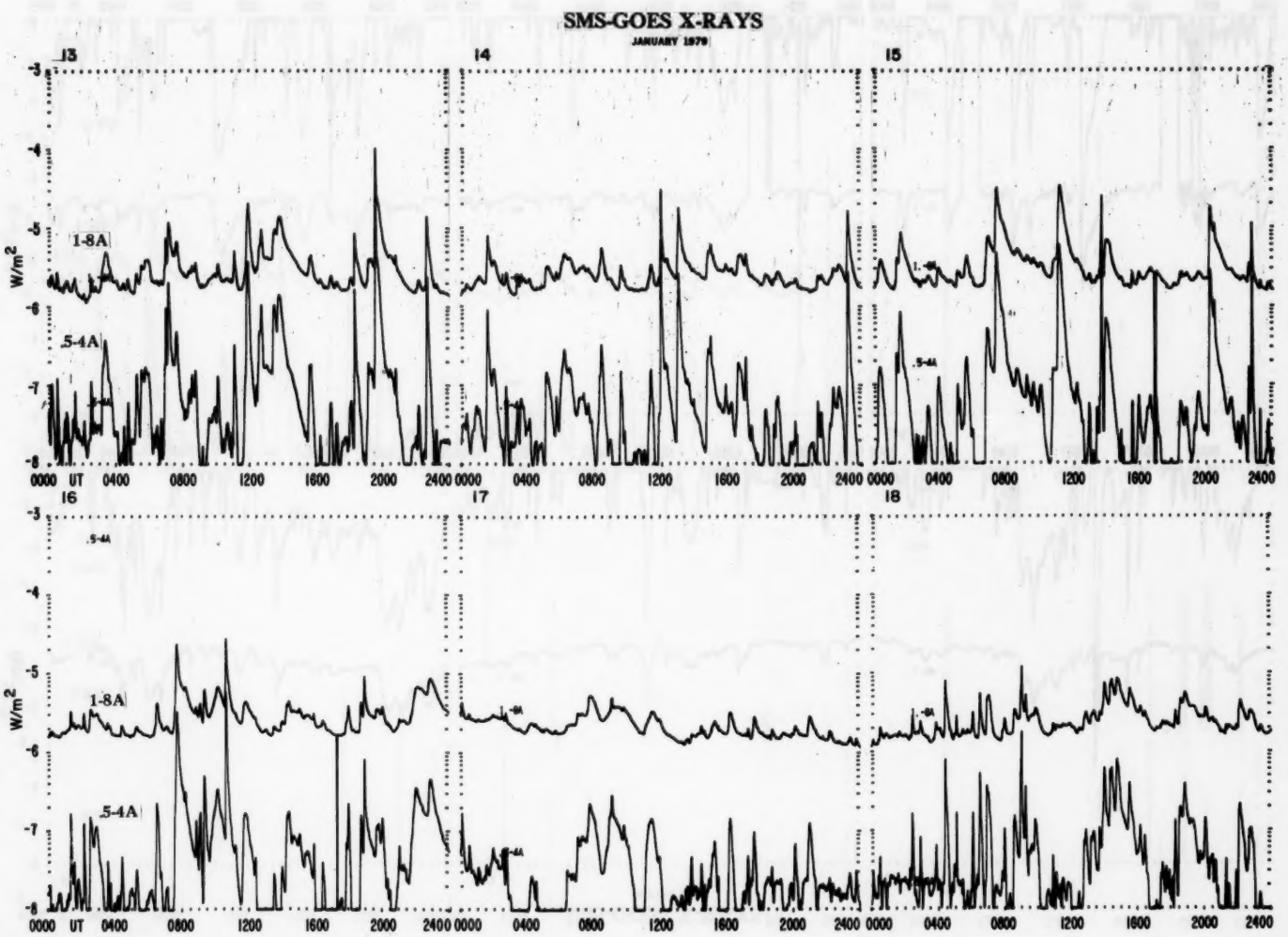
JANUARY 1979

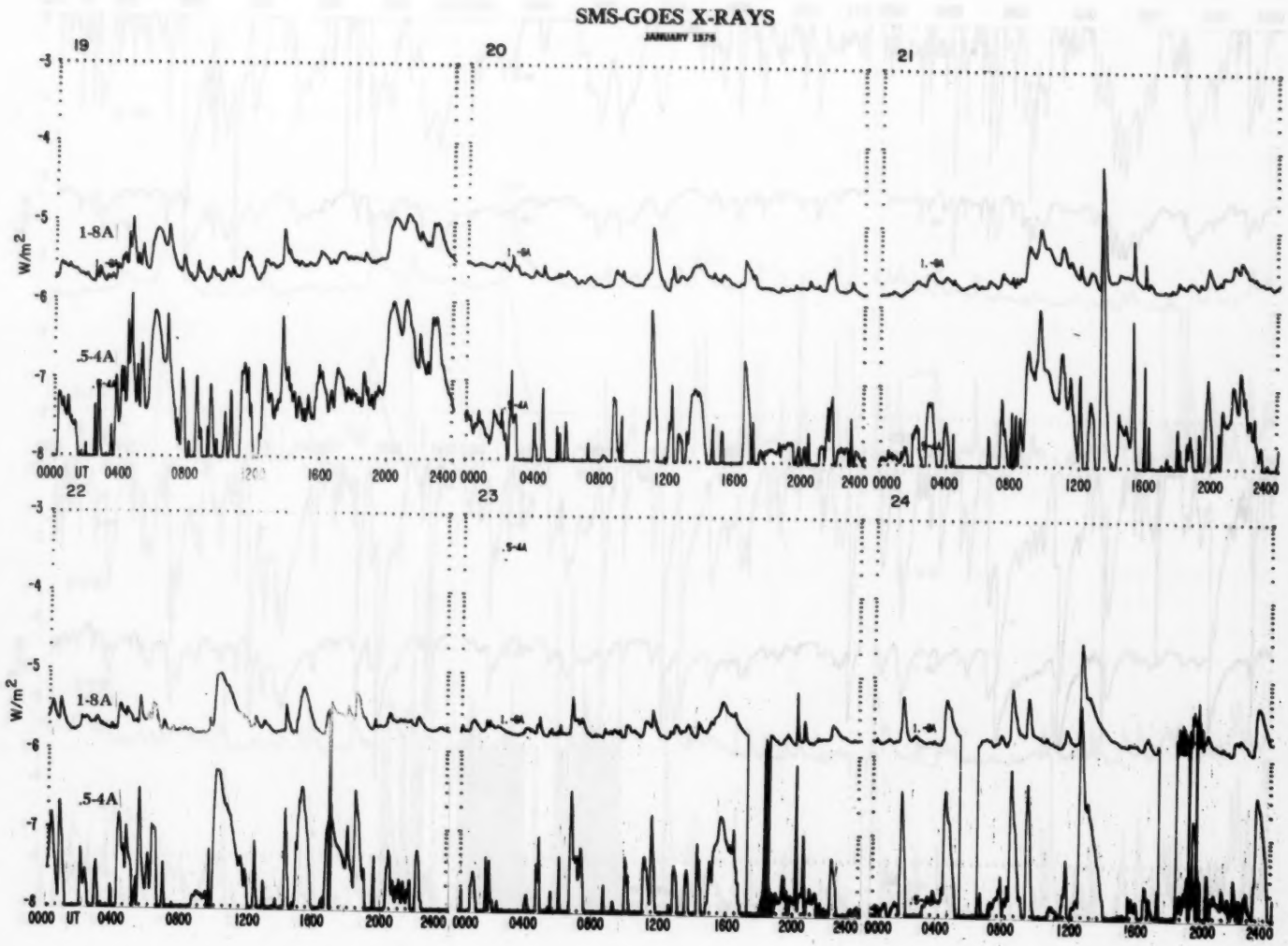


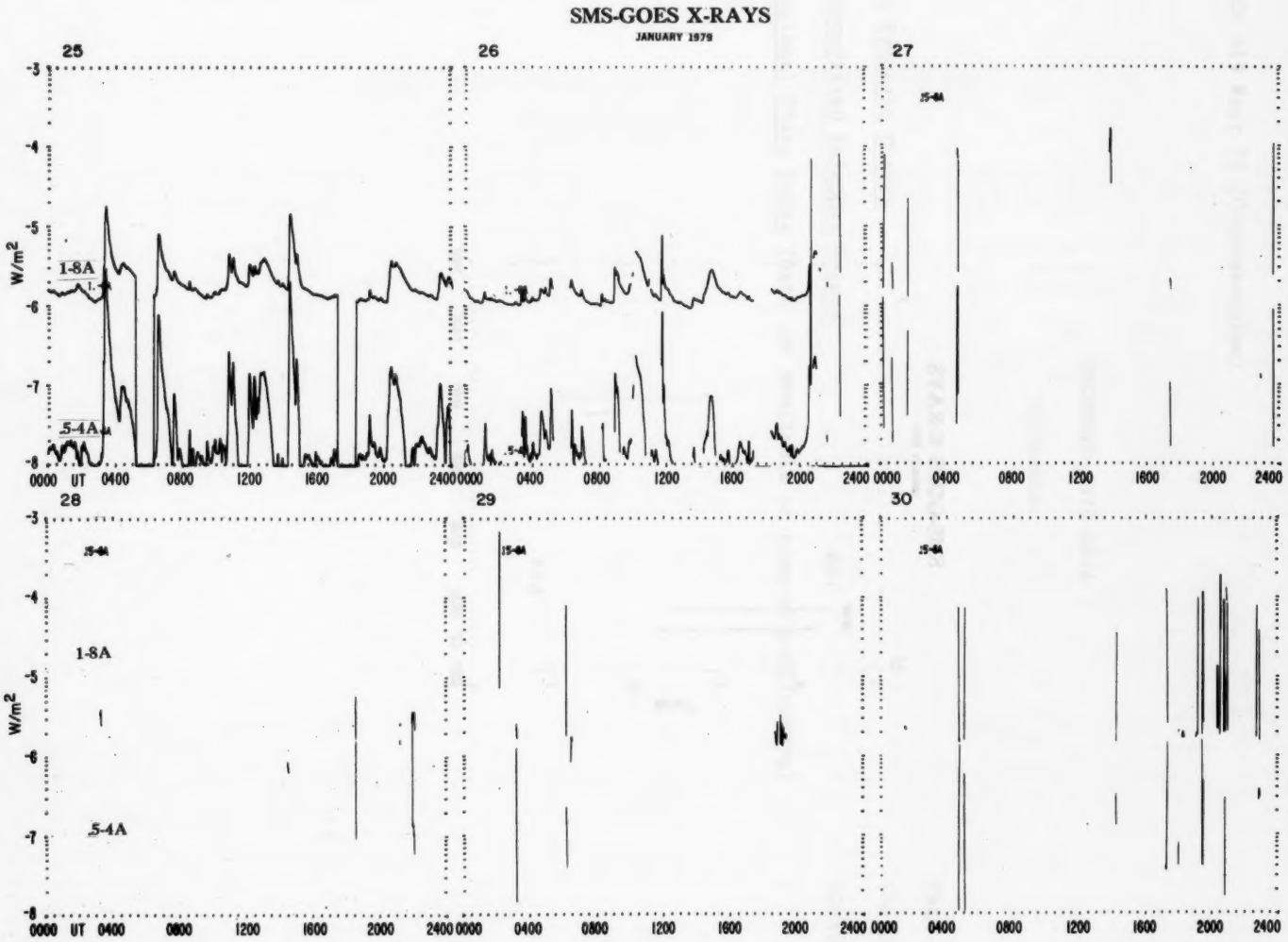
32
Jan 79

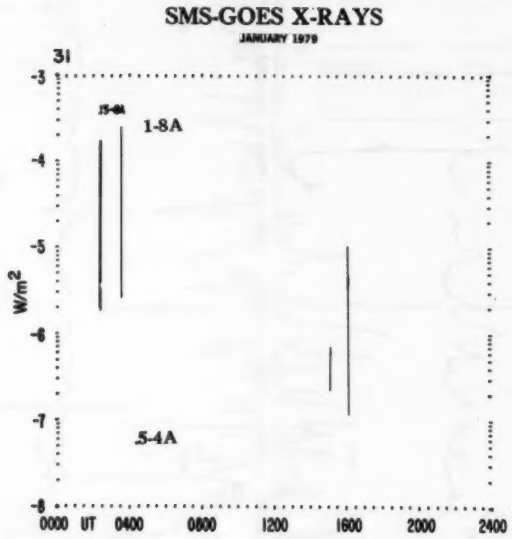

SMS-GOES X-RAYS
JANUARY 1979
01
02
03
04
05
06
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
JANUARY 1979
07
08
09
10
11
12
1-8A
.5-4A
W/m²
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
JANUARY 1979
13
14
15
16
17
18
1-8A
.5-4A
W/m2
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
JANUARY 1979
19
20
21
22
23
24
1-8A
.5-4A
W/m²
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
JANUARY 1979
25
26
27
28
29
30
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400


SMS-GOES X-RAYS
JANUARY 1979
31
-3
-4
-5
-6
-7
-8
W/m2
1-8A
.5-4A
0000 UT
0400
0800
1200
1600
2000
2400

SGD 419 Part II (Comprehensive)

DECEMBER 1978 DATA

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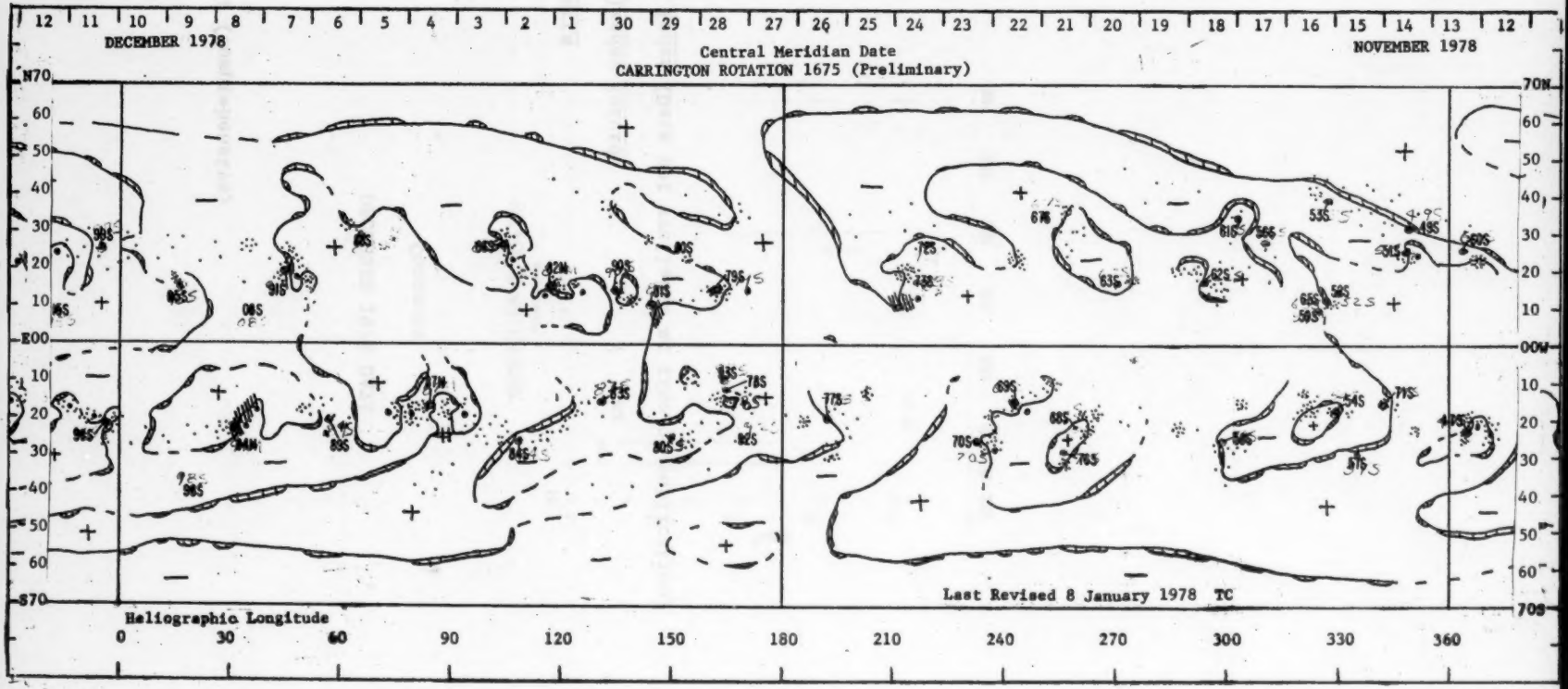
Abbreviated Calendar Record	42-49

Regional Flare Index (Data not available at time of publication)

ABBREVIATED CALENDAR RECORD

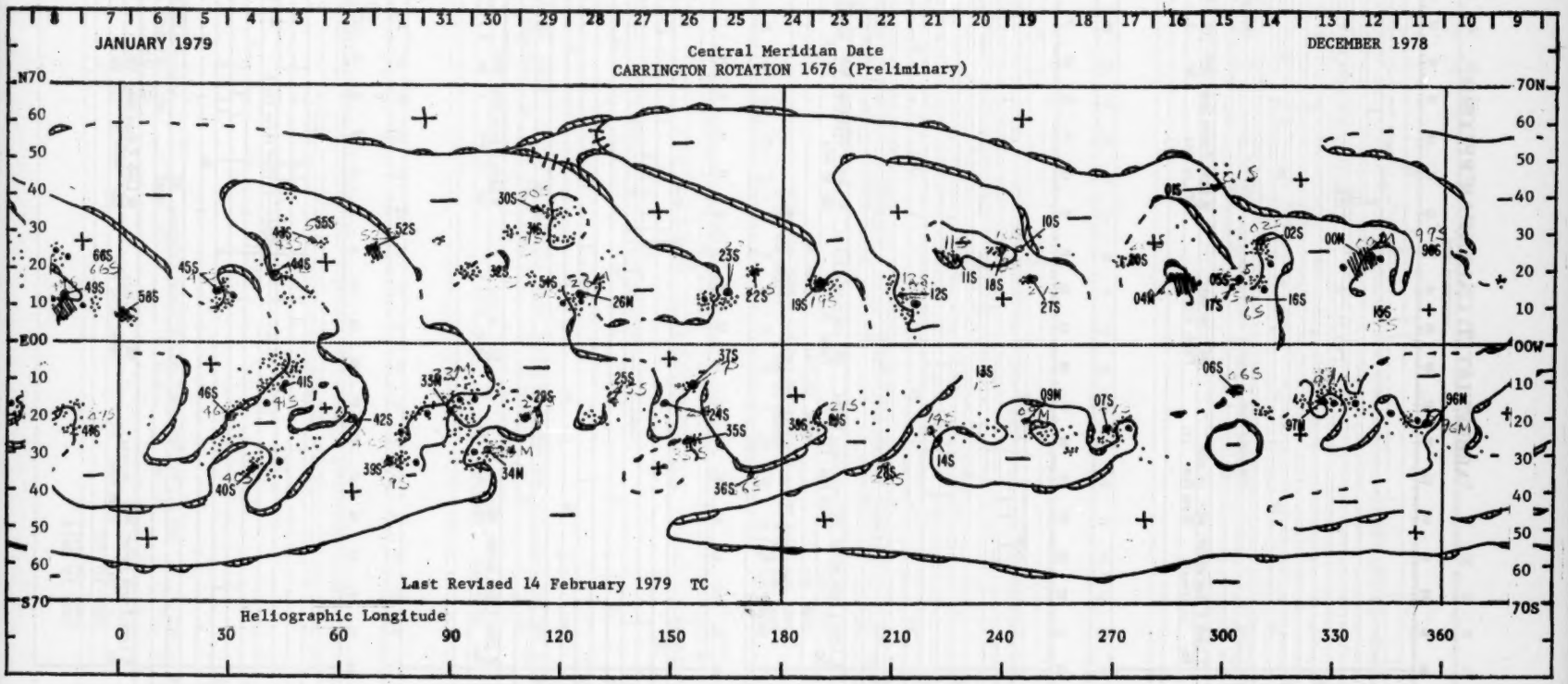
Hα SYNOPTIC CHART



ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

DECEMBER 1978- JANUARY 1979



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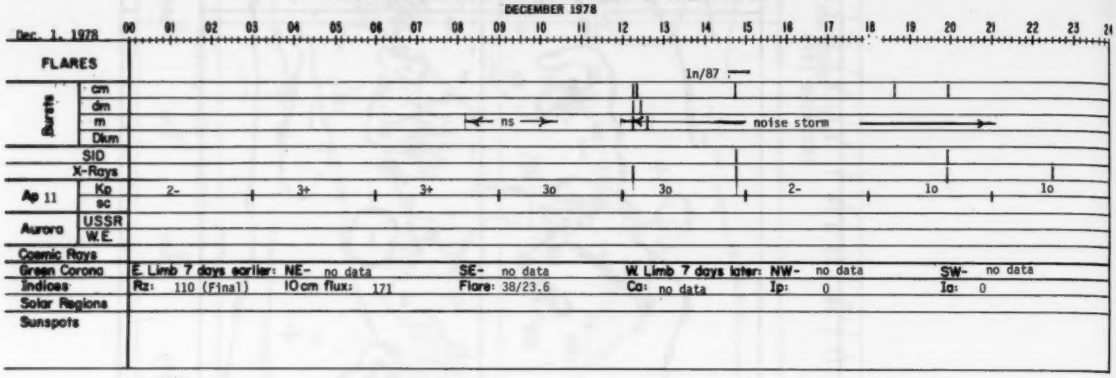
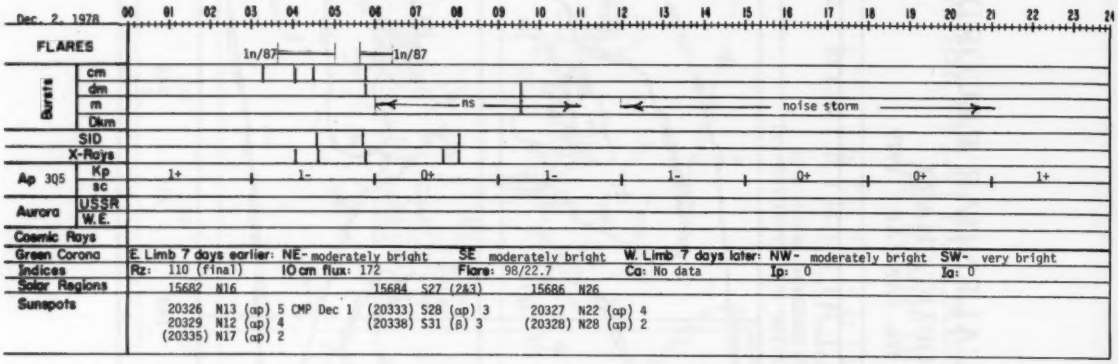
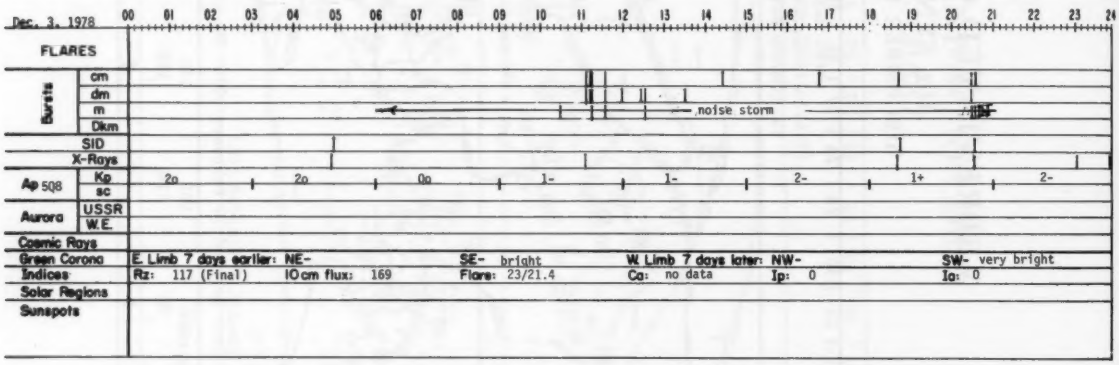
Dec 78

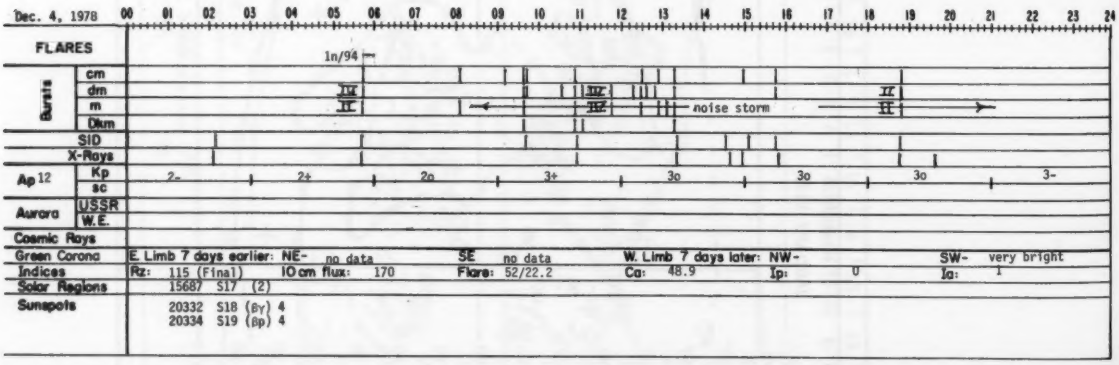
ABBREVIATED CALENDAR RECORD

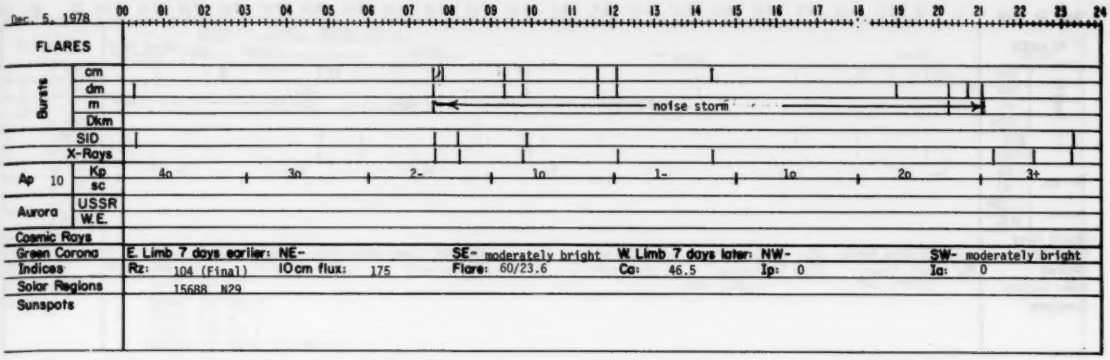
DECEMBER 1978

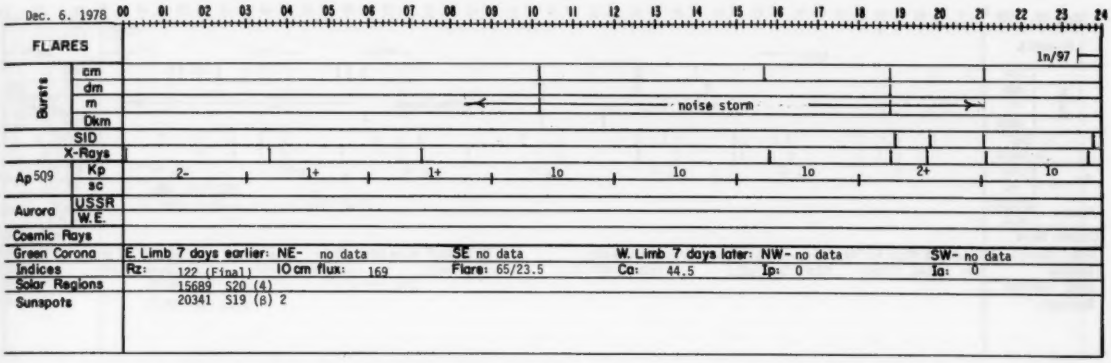


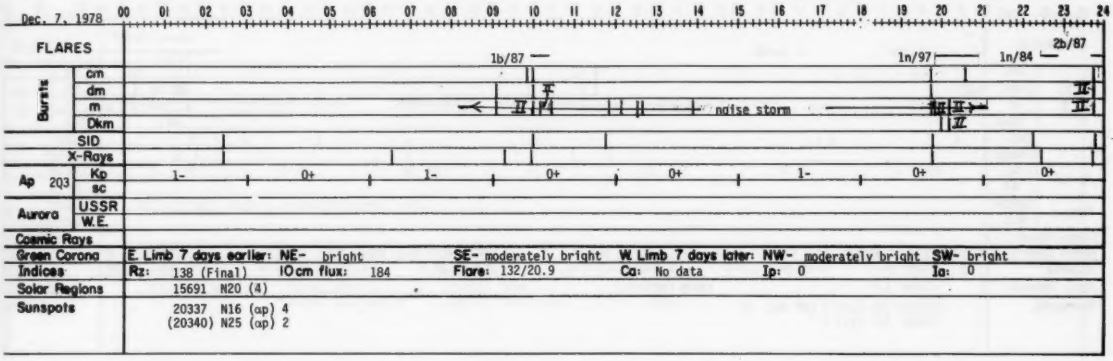


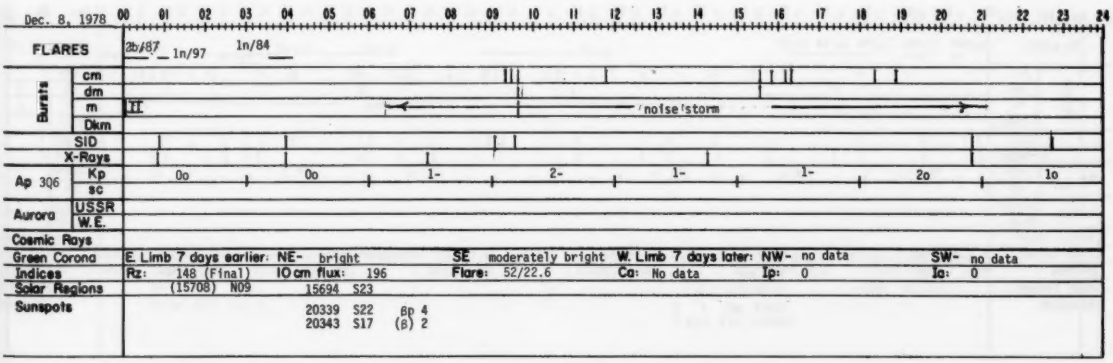


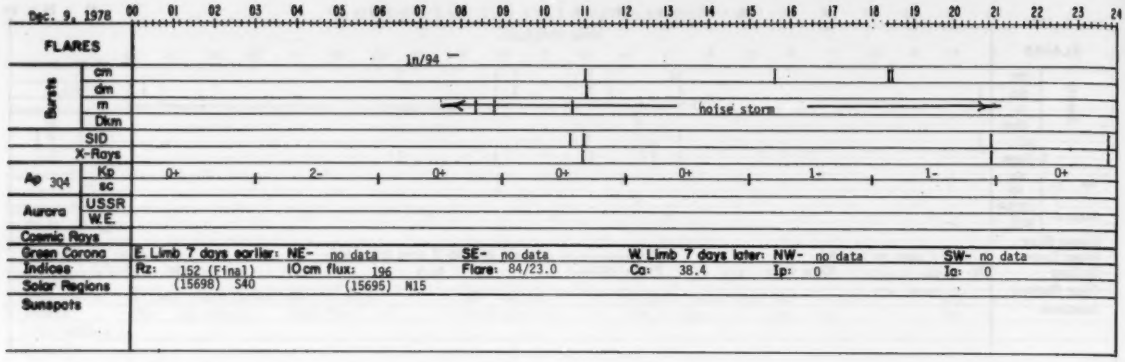



Dec. 5, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 10
Kp
sc
4o 3o 2- 1o 1- 1o 2o 3+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-
SE- moderately bright
W. Limb 7 days later: NW-
SW- moderately bright
Indices
Rz: 104 (Final)
10cm flux: 175
Flare: 60/23.6
Ca: 46.5
Ip: 0
Ia: 0
Solar Regions
15688 N29
Sunspots


Dec. 6, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/97
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 5Q9
Kp
sc
2- 1+ 1+ 1o 1o 1o 2+ 1o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data
SE no data
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 122 (Final)
10cm flux: 169
Flare: 65/23.5
Ca: 44.5
Ip: 0
Ia: 0
Solar Regions
15689 S20 (4)
Sunspots
20341 S19 (β) 2


Dec. 7, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/87
1n/97
1n/84
2b/87
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 2Q3
Kp
sc
1- 0+ 1- 0+ 0+ 1- 0+ 0+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright
SE- moderately bright
W. Limb 7 days later: NW- moderately bright
SW- bright
Indices
Rz: 138 (Final)
10cm flux: 184
Flare: 132/20.9
Ca: No data
Ip: 0
Ia: 0
Solar Regions
15691 N20 (4)
Sunspots
20337 N16 (αp) 4
(20340) N25 (αp) 2


Dec. 8, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2b/87
1n/97
1n/84
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 3Q6
Kp
sc
0o 0o 1- 2- 1- 1- 2o 1o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright
SE moderately bright
W. Limb 7 days later: NW- no data
SW- no data
Indices
Rz: 148 (Final)
10cm flux: 196
Flare: 52/22.6
Ca: No data
Ip: 0
Ia: 0
Solar Regions
(15708) N09
15694 S23
Sunspots
20339 S22 αp 4
20343 S17 (β) 2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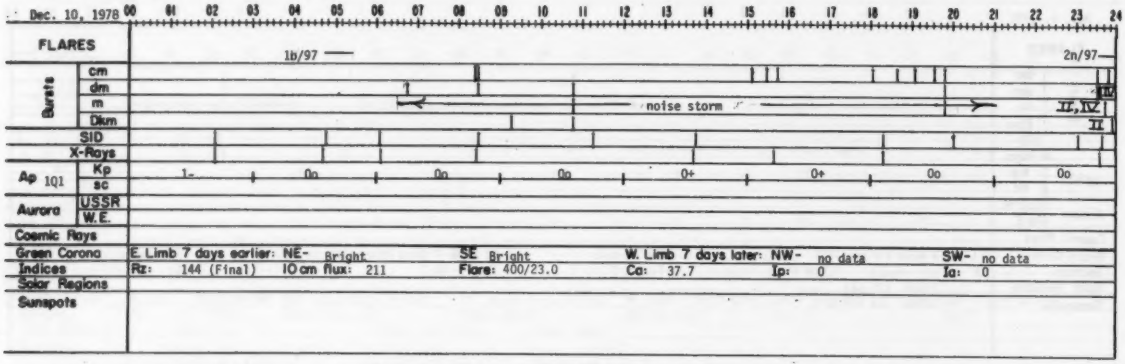
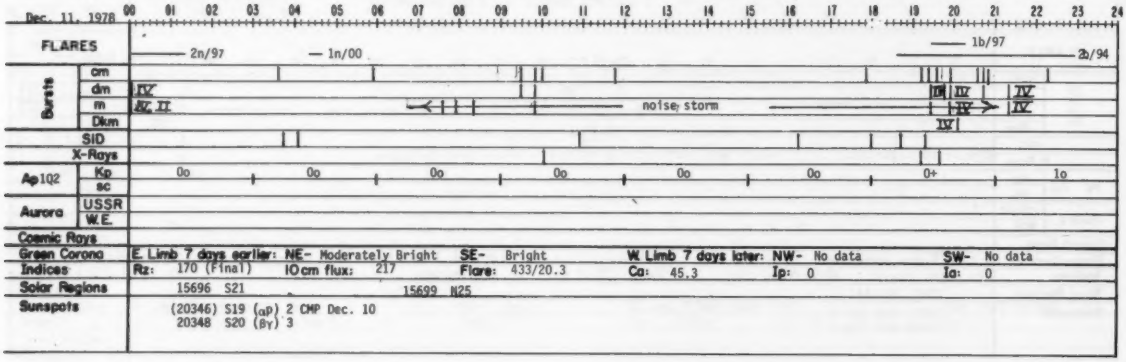
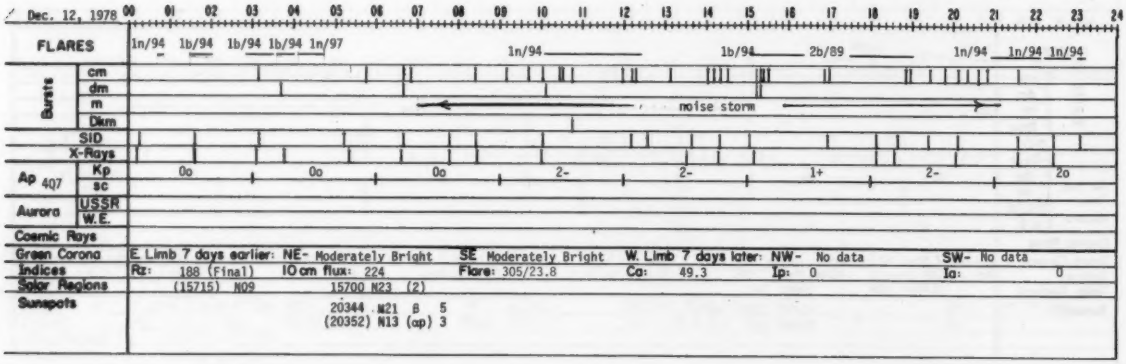
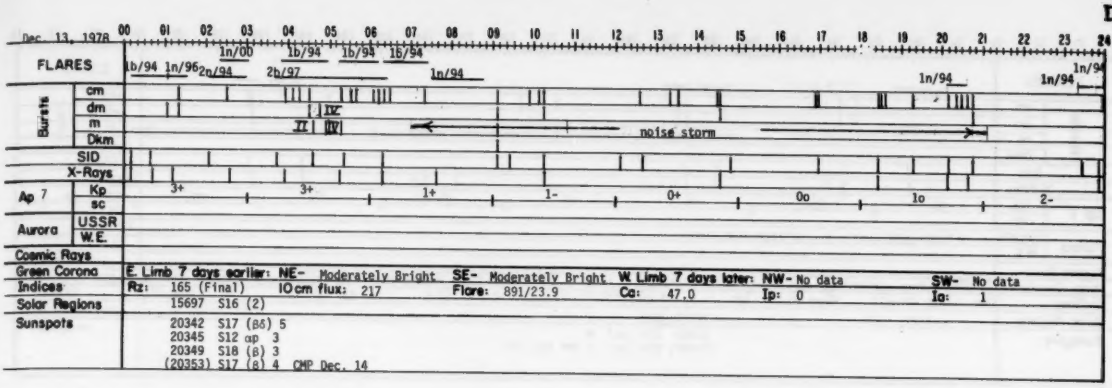
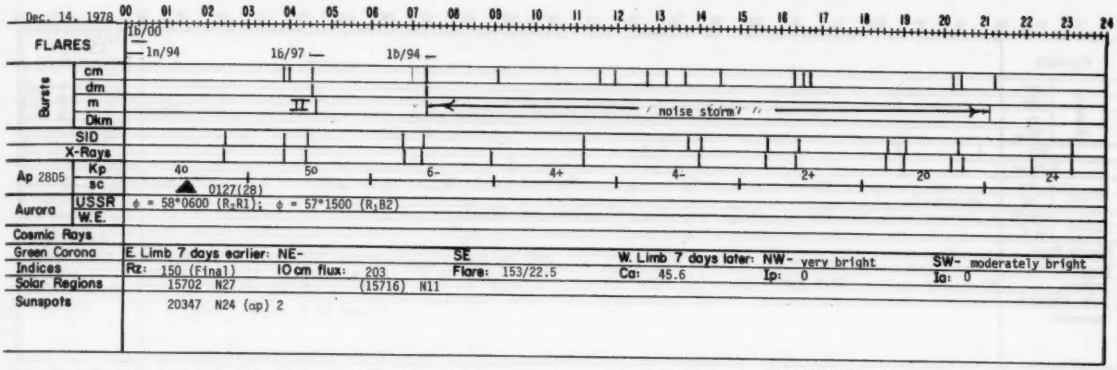
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/94
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 3Q4
Kp
sc
0+ 2- 0+ 0+ 0+ 1- 1- 0+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 152 (Final) 10cm flux: 196 Flare: 84/23.0 Ca: 38.4 Ip: 0 Ia: 0
Solar Regions
(15698) S40 (15695) N15
Sunspots

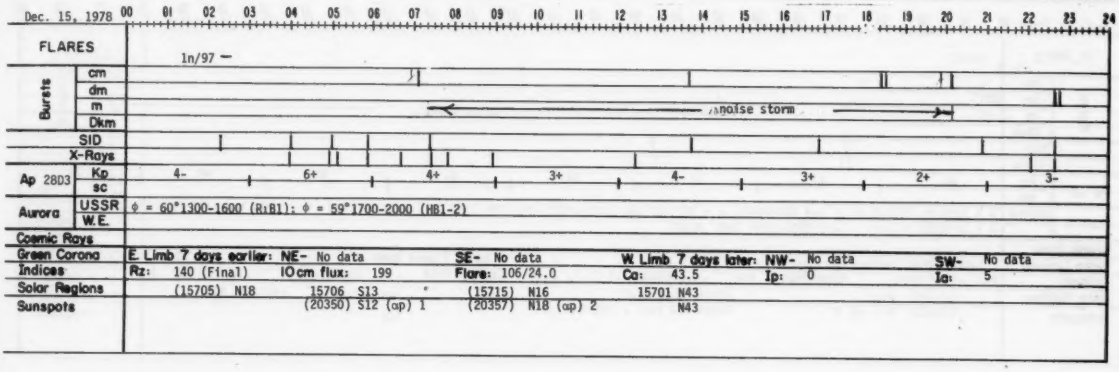

Dec. 10, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/97
2n/97
Bursts
cm
dm
m
Dkm
noise storm
II, IV
II
SID
X-Rays
Ap 1Q1
Kp
sc
1- 0o 0o 0o 0+ 0+ 0o 0o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- Bright SE Bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 144 (Final) 10cm flux: 211 Flare: 400/23.0 Ca: 37.7 Ip: 0 Ia: 0
Solar Regions
Sunspots

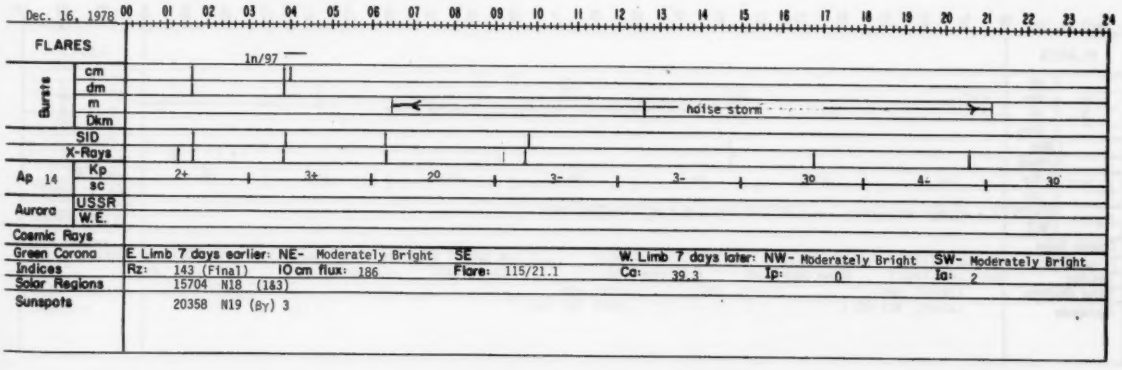

Dec. 11, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2n/97
1n/00
1b/97
2b/94
Bursts
cm
dm
IV
m
IV, II
noise storm
Dkm
SID
X-Rays
Ap 1Q2
Kp
sc
0o 0o 0o 0o 0o 0o 0+ 1o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- Moderately Bright SE- Bright W. Limb 7 days later: NW- No data SW- No data
Indices
Rz: 170 (Final) 10cm flux: 217 Flare: 433/20.3 Ca: 45.3 Ip: 0 Ia: 0
Solar Regions
15696 S21 15699 N25
Sunspots
(20346) S19 (αp) 2 CMP Dec. 10
20348 S20 (βγ) 3

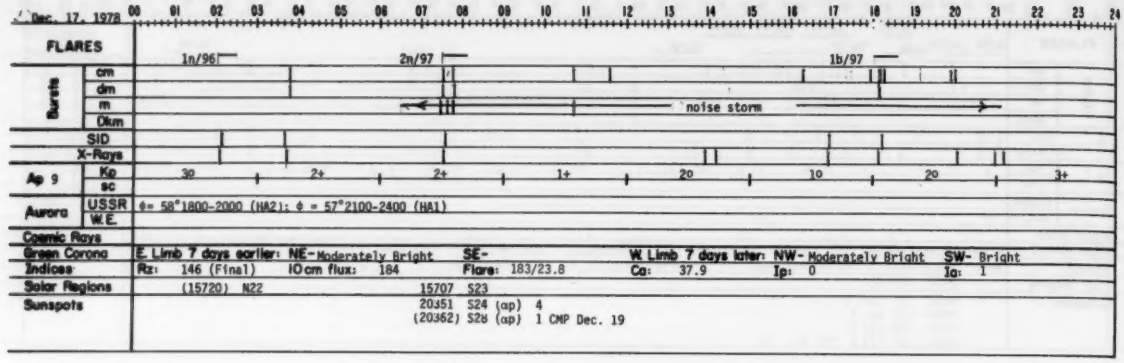

Dec. 12, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/94 1b/94 1b/94 1b/94 1n/97
1n/94
1b/94
2b/89
1n/94 1n/94 1n/94
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 4Q7
Kp
sc
0o 0o 0o 2- 2- 1+ 2- 2o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- Moderately Bright SE Moderately Bright W. Limb 7 days later: NW- No data SW- No data
Indices
Rz: 188 (Final) 10cm flux: 224 Flare: 305/23.8 Ca: 49.3 Ip: 0 Ia: 0
Solar Regions
(15715) N09 15700 N23 (2)
Sunspots
20344 N21 β 5
(20352) N13 (αp) 3

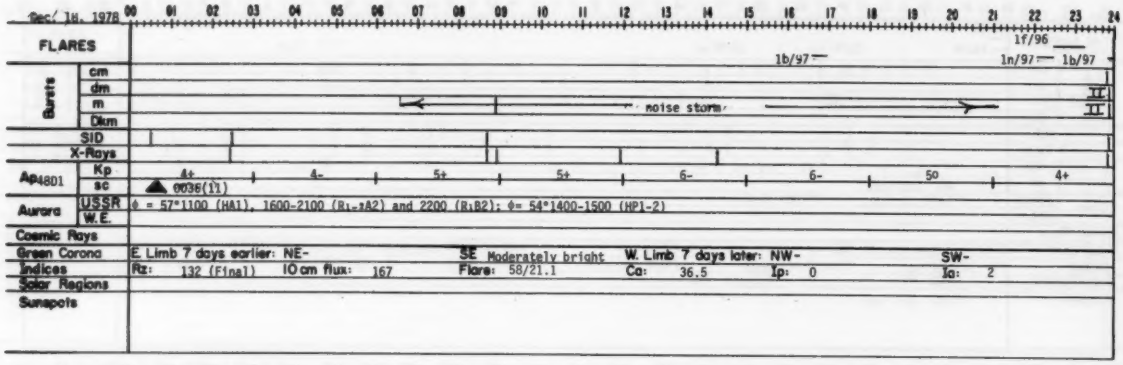

Dec. 13, 1978
FLARES
1b/94 1n/96 2n/94 1n/00 1b/94 2b/97 1b/94 1b/94 1n/94 1n/94 1n/94
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 7
Kp
sc
3+ 3+ 1+ 1- 0+ 0o 1o 2-
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
E. Limb 7 days earlier: NE- Moderately Bright SE- Moderately Bright W. Limb 7 days later: NW- No data SW- No data
Rz: 165 (Final) 10cm flux: 217 Flare: 891/23.9 Ca: 47.0 Ip: 0 Ia: 1
15697 S16 (2)
20342 S17 (Bδ) 5
20345 S12 αp 3
20349 S18 (β) 3
(20353) S17 (β) 4 CMP Dec. 14

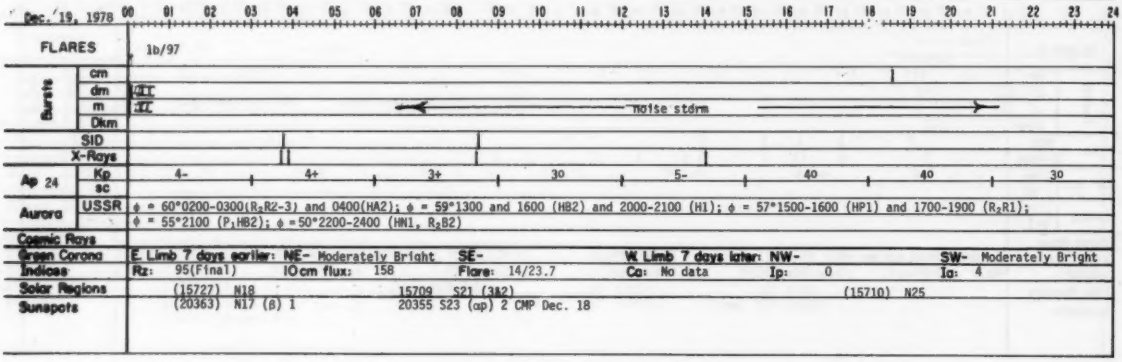

Dec. 14, 1978
FLARES
1b/dd
1n/94 1b/97 1b/94
Bursts
cm
dm
m
Dkm
noise storm?
SID
X-Rays
Ap 28D5
Kp
sc
4o 5o 6- 4+ 4- 2+ 2o 2+
0127(28)
Aurora
USSR
W.E.
φ = 58°0600 (R2R1); φ = 57°1500 (R1B2)
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
E. Limb 7 days earlier: NE- SE W. Limb 7 days later: NW- very bright SW- moderately bright
Rz: 150 (Final) 10cm flux: 203 Flare: 153/22.5 Ca: 45.6 Ip: 0 Ia: 0
15702 N27 (15716) N11
20347 N24 (αp) 2

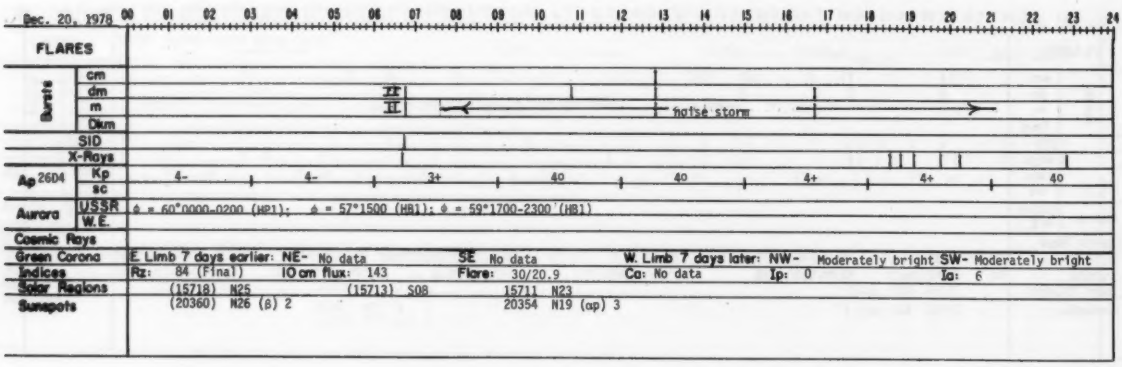

Dec. 15, 1978
FLARES
1n/97
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 28D3
Kp
sc
4- 6+ 4+ 3+ 4- 3+ 2+ 3-
Aurora
USSR
W.E.
φ = 60°1300-1600 (R1B1); φ = 59°1700-2000 (HB1-2)
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
E. Limb 7 days earlier: NE- No data SE- No data W. Limb 7 days later: NW- No data SW- No data
Rz: 140 (Final) 10cm flux: 199 Flare: 106/24.0 Ca: 43.5 Ip: 0 Ia: 5
(15705) N18 15706 S13 (15715) N16 15701 N43
(20350) S12 (αp) 1 (20357) N18 (αp) 2 N43

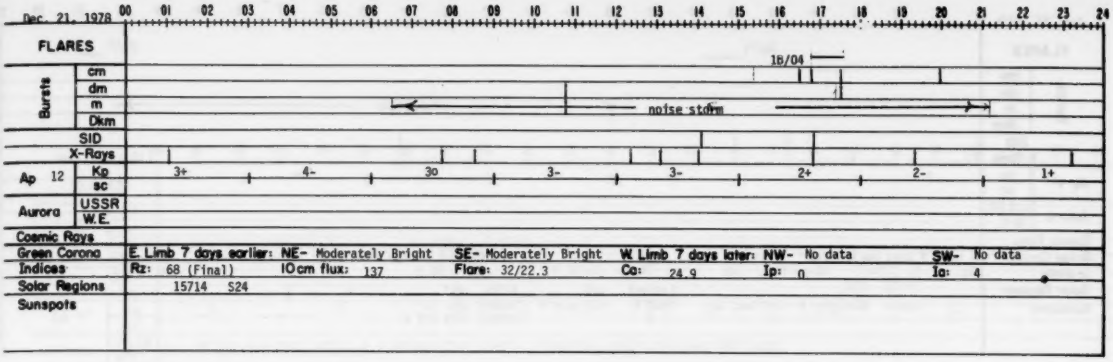

Dec. 16, 1978
FLARES
1n/97
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 14
Kp
sc
2+ 3+ 2o 3- 3- 3o 4- 3o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
E. Limb 7 days earlier: NE- Moderately Bright SE W. Limb 7 days later: NW- Moderately Bright SW- Moderately Bright
Rz: 143 (Final) 10cm flux: 186 Flare: 115/21.1 Ca: 39.3 Ip: 0 Ia: 2
15704 N18 (1δ3)
20358 N19 (βγ) 3

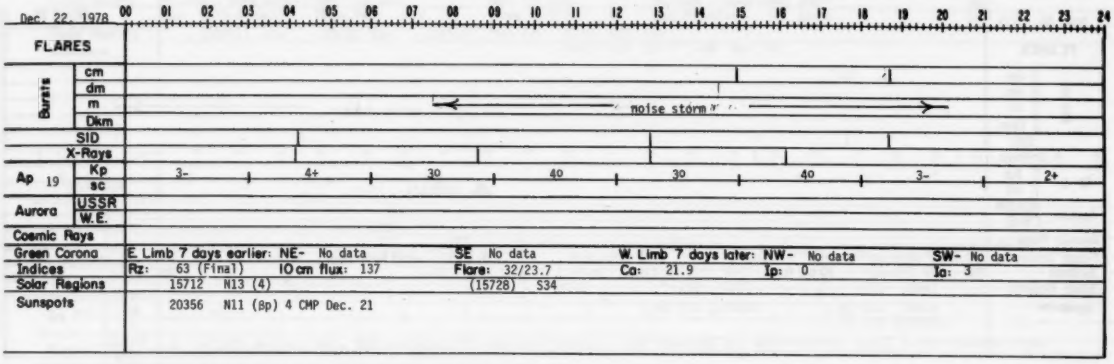

Dec. 17, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/96
2n/97
1b/97
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 9
Kp
sc
3o 2+ 2+ 1+ 2o 1o 2o 3+
Aurora
USSR
W.E.
ϕ= 58°1800-2000 (HA2); ϕ = 57°2100-2400 (HA1)
Cosmic Rays
Green Corona
E Limb 7 days earlier: NE- Moderately Bright SE-
W Limb 7 days later: NW- Moderately Bright SW- Bright
Indices
Rz: 146 (Final) 10cm flux: 184 Flare: 183/23.8 Ca: 37.9 Ip: 0 Ia: 1
Solar Regions
(15720) N22 15707 S23
Sunspots
20351 S24 (αp) 4
(20362) S26 (αp) 1 CMP Dec. 19

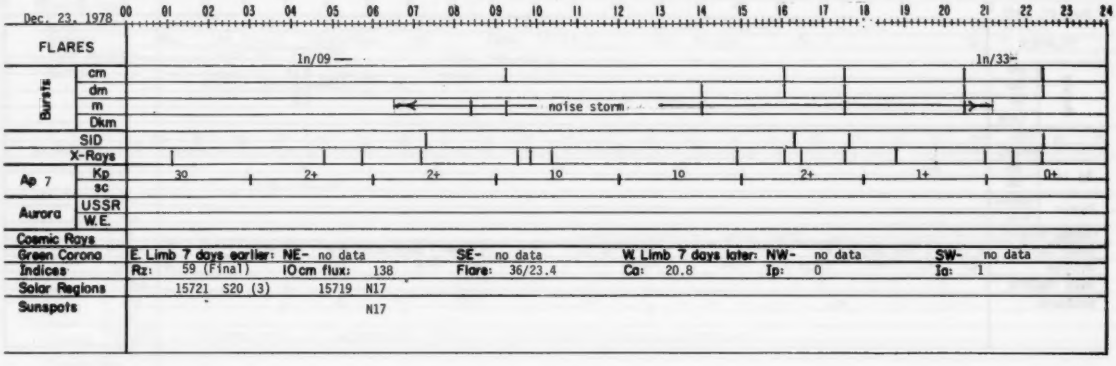

Dec. 18, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/96
1b/97
1n/97
1b/97
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 48o1
Kp
sc
4+ 4- 5+ 5+ 6- 6- 5o 4+
0036(1f)
Aurora
USSR
W.E.
ϕ = 57°1100 (HA1), 1600-2100 (R1-2A2) and 2200 (R1B2); ϕ= 54°1400-1500 (HP1-2)
Cosmic Rays
Green Corona
E Limb 7 days earlier: NE-
SE Moderately bright
W Limb 7 days later: NW-
SW-
Indices
Rz: 132 (Final) 10cm flux: 167 Flare: 58/21.1 Ca: 36.5 Ip: 0 Ia: 2
Solar Regions
Sunspots

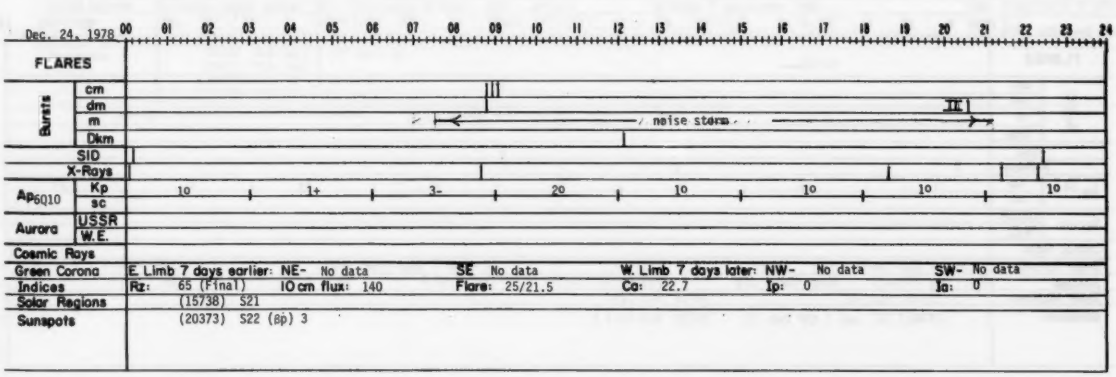

Dec. 19, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1b/97
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 24
Kp
sc
4- 4+ 3+ 3o 5- 4o 4o 3o
Aurora
USSR
ϕ = 60°0200-0300(R2R2-3) and 0400(HA2); ϕ = 59°1300 and 1600 (HB2) and 2000-2100 (H1); ϕ = 57°1500-1600 (HP1) and 1700-1900 (R2R1);
ϕ = 55°2100 (P1HB2); ϕ =50°2200-2400 (HN1, R2B2)
Cosmic Rays
Green Corona
E Limb 7 days earlier: NE- Moderately Bright SE-
W Limb 7 days later: NW- SW- Moderately Bright
Indices
Rz: 95(Final) 10cm flux: 158 Flare: 14/23.7 Ca: No data Ip: 0 Ia: 4
Solar Regions
(15727) N18 15709 S21 (3A2) (15710) N25
Sunspots
(20363) N17 (β) 1 20355 S23 (αp) 2 CMP Dec. 18

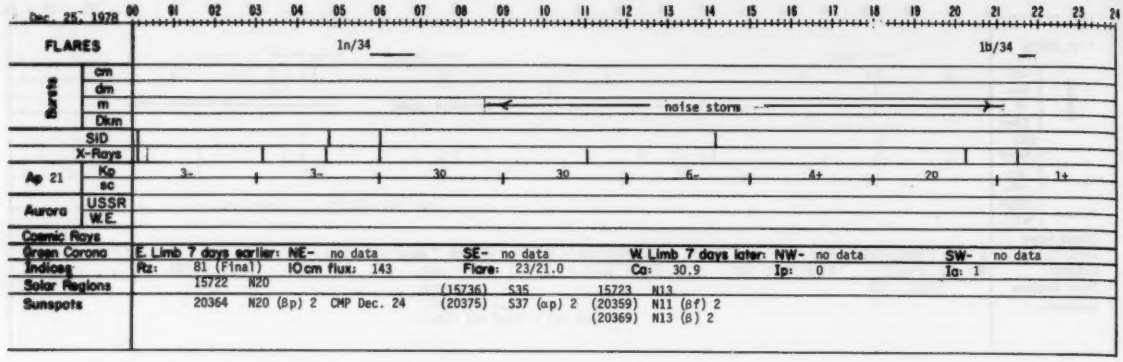

Dec. 20, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 2604
Kp
sc
4- 4- 3+ 4o 4o 4+ 4+ 4o
Aurora
USSR
W.E.
ϕ = 60°0000-0200 (HP1); ϕ = 57°1500 (HB1); ϕ = 59°1700-2300 (HB1)
Cosmic Rays
Green Corona
E Limb 7 days earlier: NE- No data
SE No data
W Limb 7 days later: NW- Moderately bright SW- Moderately bright
Indices
Rz: 84 (Final) 10cm flux: 143 Flare: 30/20.9 Ca: No data Ip: 0 Ia: 6
Solar Regions
(15718) N25 (15713) S08 15711 N23
Sunspots
(20360) N26 (β) 2 20354 N19 (αp) 3

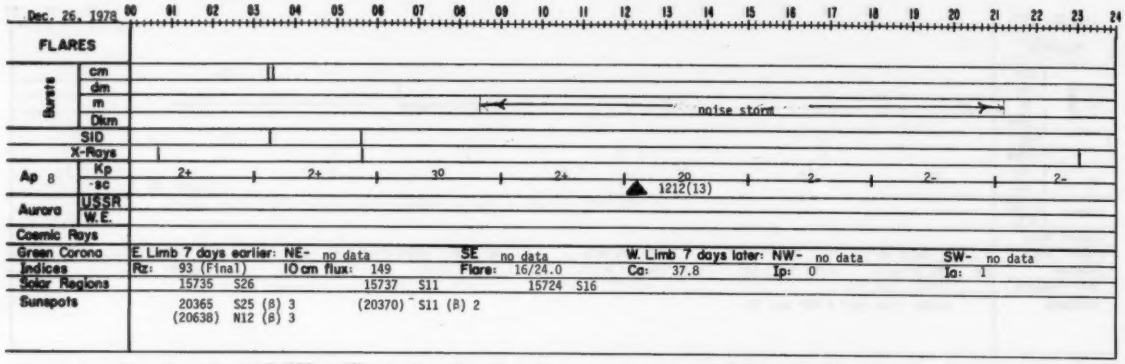

Dec. 21, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 12
Kp
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
18/04
noise storm
3+ 4- 3o 3- 3- 2+ 2- 1+
E. Limb 7 days earlier: NE- Moderately Bright SE- Moderately Bright W. Limb 7 days later: NW- No data SW- No data
Rz: 68 (Final) 10cm flux: 137 Flare: 32/22.3 Ca: 24.9 Ip: 0 Ia: 4
15714 S24

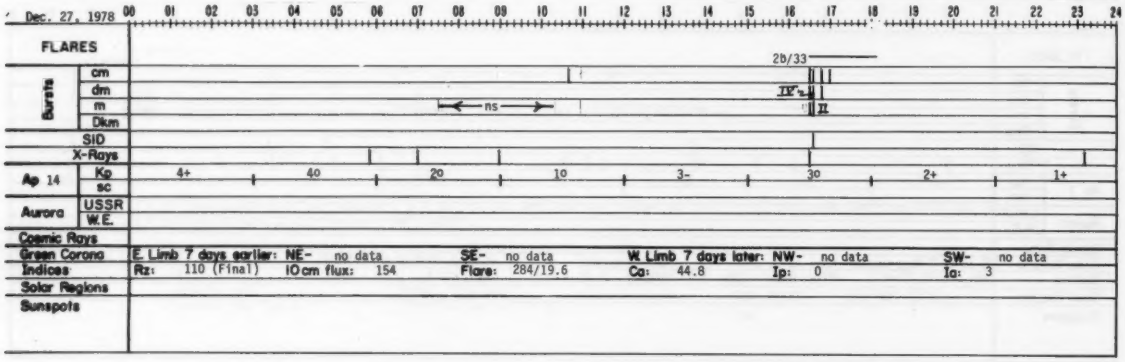

Dec. 22, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 19
Kp
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
noise storm
3- 4+ 3o 4o 3o 4o 3- 2+
E. Limb 7 days earlier: NE- No data SE No data W. Limb 7 days later: NW- No data SW- No data
Rz: 63 (Final) 10cm flux: 137 Flare: 32/23.7 Ca: 21.9 Ip: 0 Ia: 3
15712 N13 (4) (15728) S34
20356 N11 (Bp) 4 CMP Dec. 21

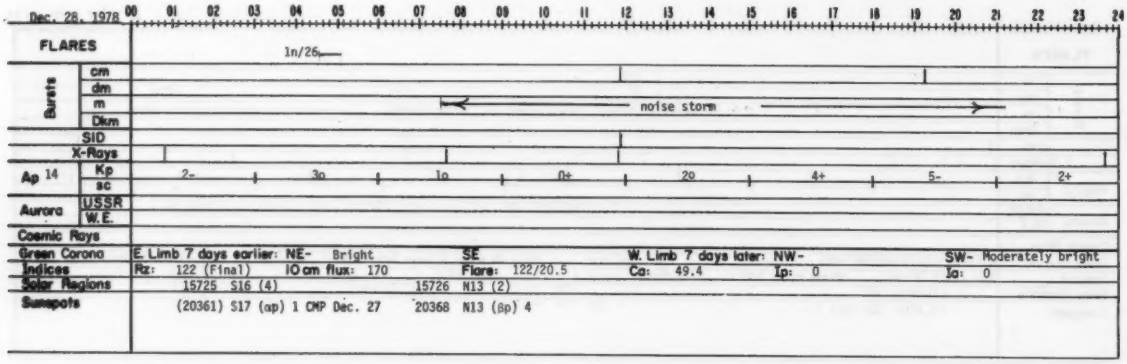

Dec. 23, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 7
Kp
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
1n/09
1n/33
noise storm
3o 2+ 2+ 1o 1o 2+ 1+ 0+
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Rz: 59 (Final) 10cm flux: 138 Flare: 36/23.4 Ca: 20.8 Ip: 0 Ia: 1
15721 S20 (3) 15719 N17
N17

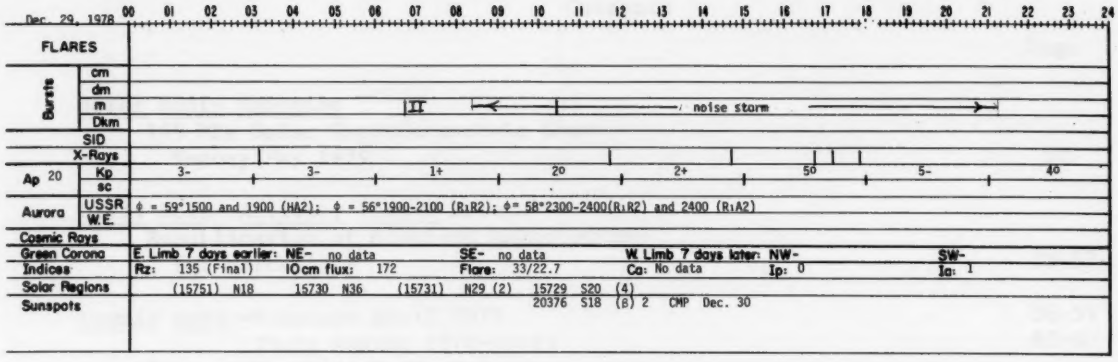

Dec. 24, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap6Q10
Kp
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
Indices
Solar Regions
Sunspots
noise storm
1o 1+ 3- 2o 1o 1o 1o 1o
E. Limb 7 days earlier: NE- No data SE No data W. Limb 7 days later: NW- No data SW- No data
Rz: 65 (Final) 10cm flux: 140 Flare: 25/21.5 Ca: 22.7 Ip: 0 Ia: 0
(15738) S21
(20373) S22 (Bp) 3

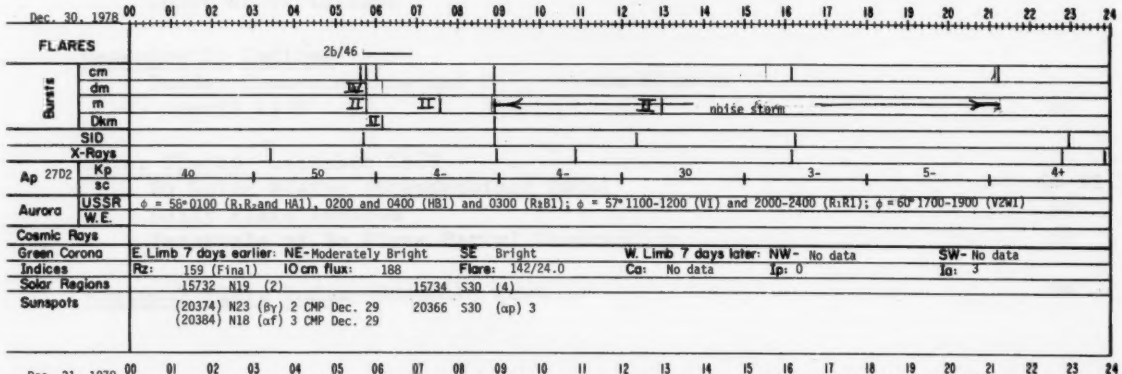

Dec. 25, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/34
1b/34
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 21
Kp
sc
3- 3- 30 30 6- 4+ 2o 1+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 81 (Final) IOcm flux: 143 Flare: 23/21.0 Ca: 30.9 Ip: 0 Ia: 1
Solar Regions
15722 N20 (15736) S35 15723 N13
Sunspots
20364 N20 (βp) 2 CMP Dec. 24 (20375) S37 (αp) 2 (20359) N11 (βf) 2
(20369) N13 (β) 2

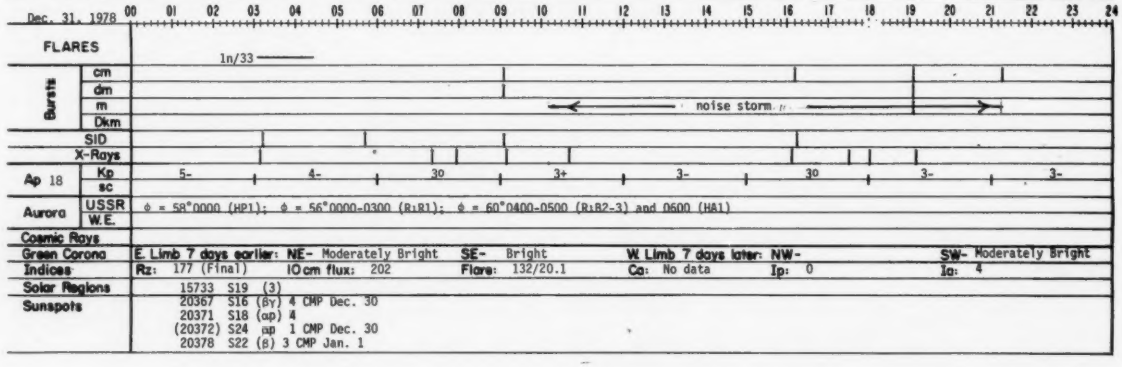

Dec. 26, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 8
Kp
sc
2+ 2+ 3o 2+ 2o 2- 2- 2-
1212(13)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 93 (Final) IOcm flux: 149 Flare: 16/24.0 Ca: 37.8 Ip: 0 Ia: 1
Solar Regions
15735 S26 15737 S11 15724 S16
Sunspots
20365 S25 (β) 3 (20370) S11 (β) 2
(20638) N12 (β) 3


Dec. 27, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2b/33
Bursts
cm
dm
m
Dkm
ns
SID
X-Rays
Ap 14
Kp
sc
4+ 4o 2o 1o 3- 3o 2+ 1+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 110 (Final) IOcm flux: 154 Flare: 284/19.6 Ca: 44.8 Ip: 0 Ia: 3
Solar Regions
Sunspots


Dec. 28, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/26
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 14
Kp
sc
2- 3o 1o 0+ 2o 4+ 5- 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- Bright SE W. Limb 7 days later: NW- SW- Moderately bright
Indices
Rz: 122 (Final) IOcm flux: 170 Flare: 122/20.5 Ca: 49.4 Ip: 0 Ia: 0
Solar Regions
15725 S16 (4) 15726 N13 (2)
Sunspots
(20361) S17 (αp) 1 CMP Dec. 27 20368 N13 (βp) 4


Dec. 29, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
II
noise storm
SID
X-Rays
Ap 20
Kp
sc
3- 3- 1+ 2o 2+ 5o 5- 4o
Aurora
USSR
W.E.
φ = 59°1500 and 1900 (HA2); φ = 56°1900-2100 (R1R2); φ= 58°2300-2400(R1R2) and 2400 (R1A2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data
SE- no data
W. Limb 7 days later: NW-
SW-
Indices
Rz: 135 (Final)
IOcm flux: 172
Flare: 33/22.7
Ca: No data
Ip: 0
Ia: 1
Solar Regions
(15751) N18
15730 N36
(15731) N29 (2)
15729 S20 (4)
Sunspots
20376 S18 (β) 2 CMP Dec. 30


Dec. 30, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2b/46
Bursts
cm
dm
m
Dkm
II
noise storm
SID
X-Rays
Ap 27D2
Kp
sc
4o 5o 4- 4- 3o 3- 5- 4+
Aurora
USSR
W.E.
φ = 56°0100 (R1R2and HA1), 0200 and 0400 (HB1) and 0300 (R2B1); φ = 57°1100-1200 (V1) and 2000-2400 (R1R1); φ = 60°1700-1900 (V2W1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-Moderately Bright
SE Bright
W. Limb 7 days later: NW- No data
SW- No data
Indices
Rz: 159 (Final)
IOcm flux: 188
Flare: 142/24.0
Ca: No data
Ip: 0
Ia: 3
Solar Regions
15732 N19 (2)
15734 S30 (4)
Sunspots
(20374) N23 (βγ) 2 CMP Dec. 29
20366 S30 (αp) 3
(20384) N18 (αf) 3 CMP Dec. 29


Dec. 31, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/33
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 18
Kp
sc
5- 4- 3o 3+ 3- 3o 3- 3-
Aurora
USSR
W.E.
φ = 58°0000 (HP1); φ = 56°0000-0300 (R1B1); φ = 60°0400-0500 (R1B2-3) and 0600 (HA1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- Moderately Bright
SE- Bright
W. Limb 7 days later: NW-
SW- Moderately Bright
Indices
Rz: 177 (Final)
IOcm flux: 202
Flare: 132/20.1
Ca: No data
Ip: 0
Ia: 4
Solar Regions
15733 S19 (3)
Sunspots
20367 S16 (βγ) 4 CMP Dec. 30
20371 S18 (αp) 4
(20372) S24 αp 1 CMP Dec. 30
20378 S22 (β) 3 CMP Jan. 1

SGD 419 Part II (Comprehensive)

Miscellaneous Data

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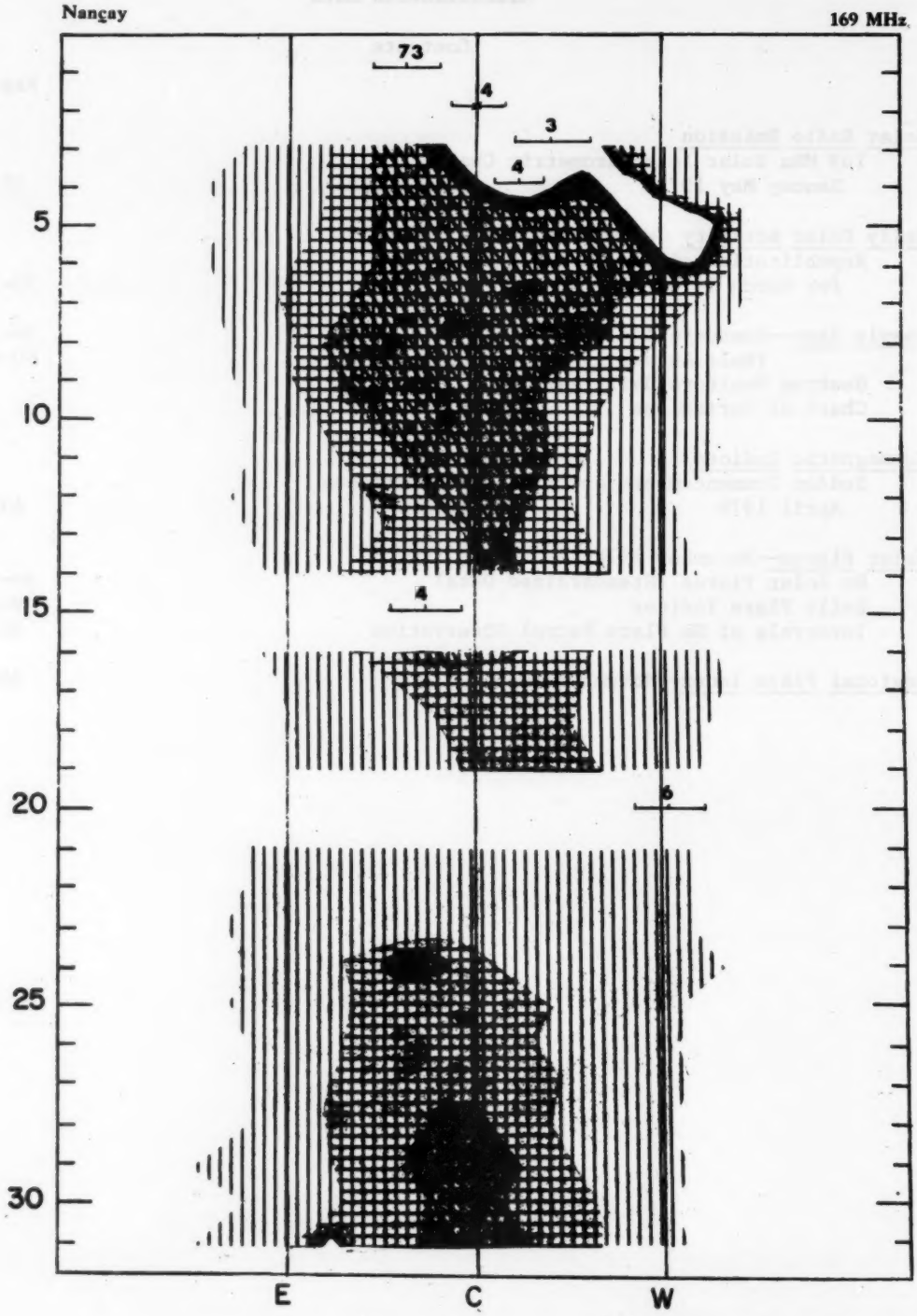
52
Misc
May 79

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

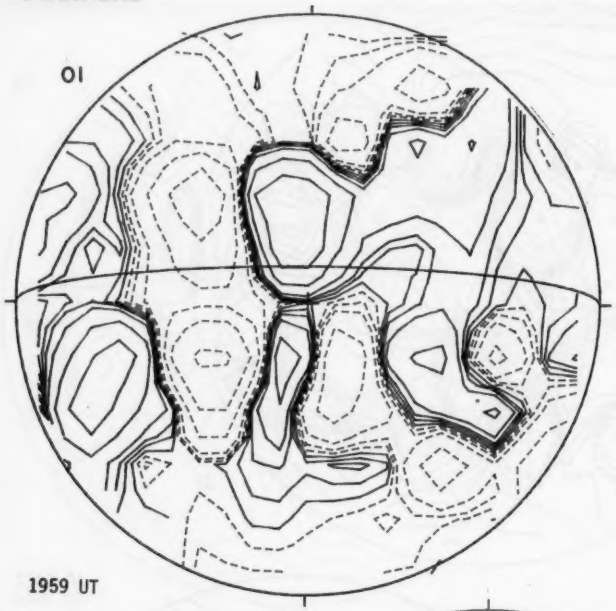
MAY 1979

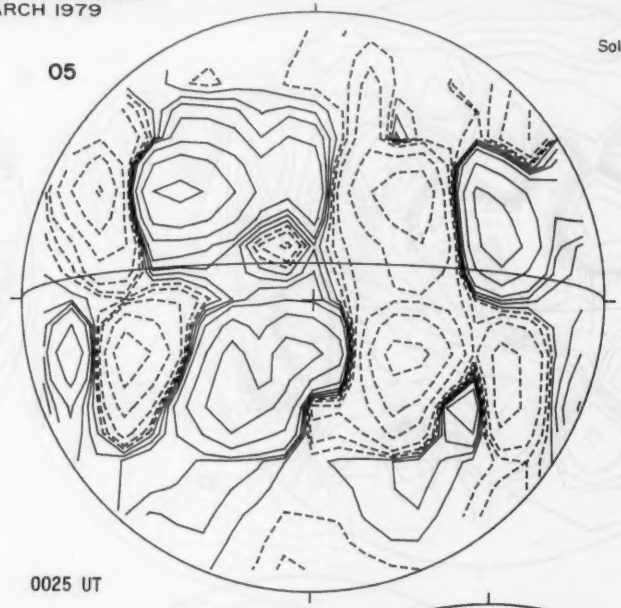


MAGNETOGRAMS
MARCH 1978
STANFORD

STANFORD

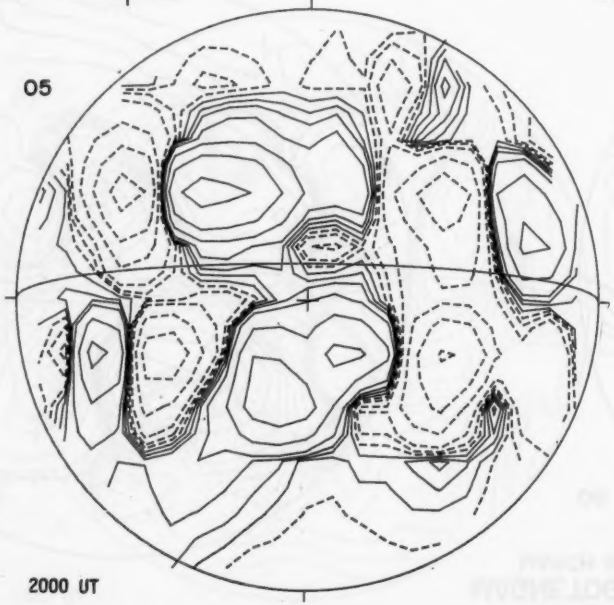
MAGNETOGRAMS
MARCH 1979

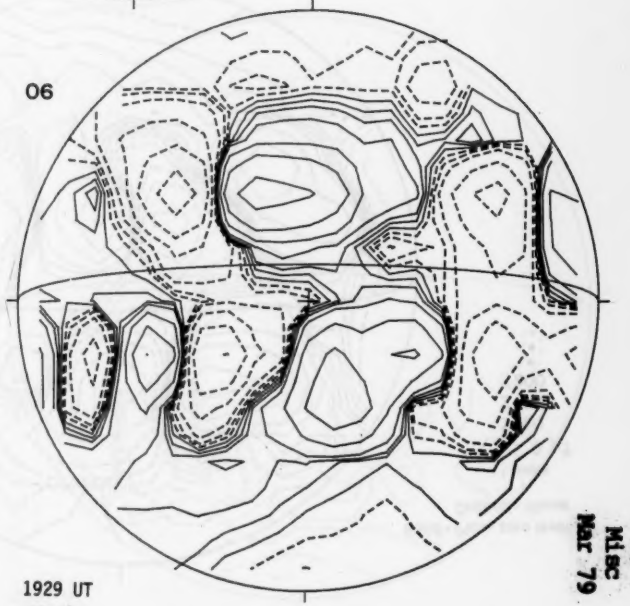




Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200
• • •





53
Misc
Mar 79

STANFORD

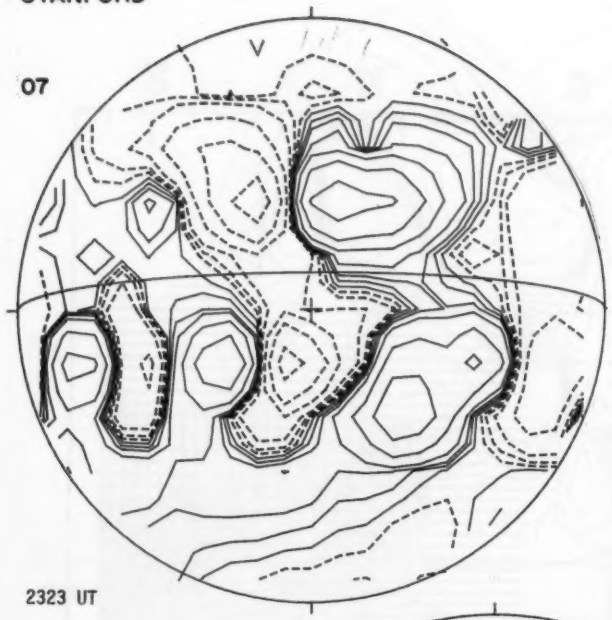
MAGNETOGRAMS
MARCH 1979

54
Misc
Mar 79

Solid - Plus; zero level
Dashed - Minus

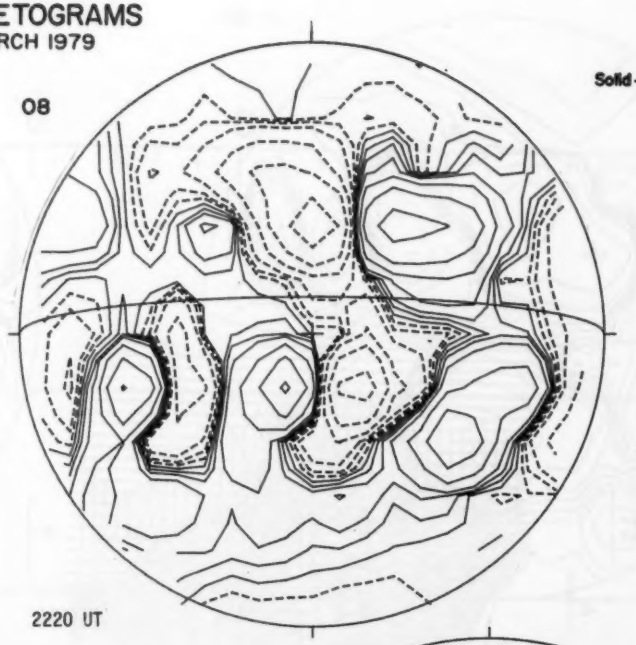
Levels
0 μT
± 50
±100
±200
•
•
•

07



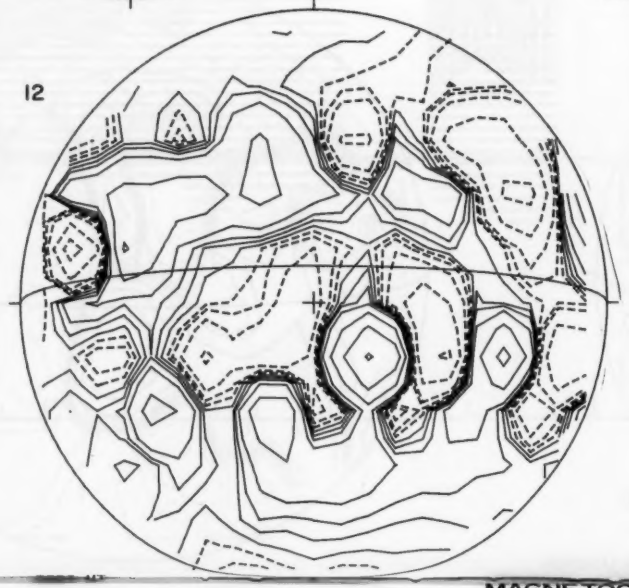
2323 UT

08

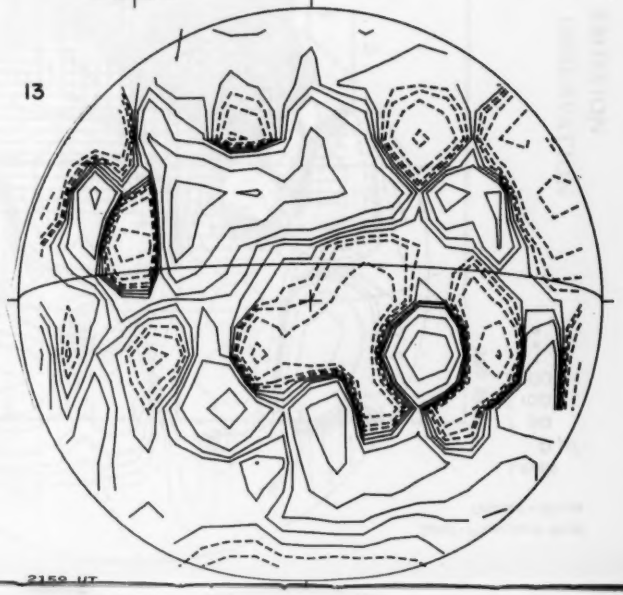


2220 UT

12



13



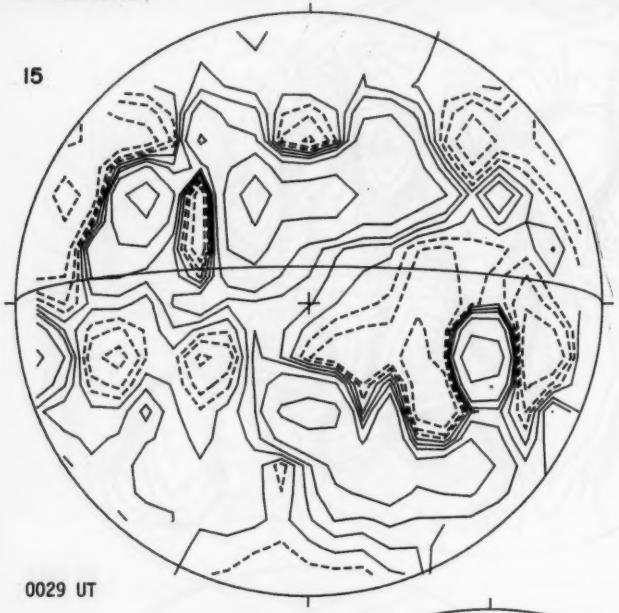
STANFORD

MAGNETOGRAMS

STANFORD

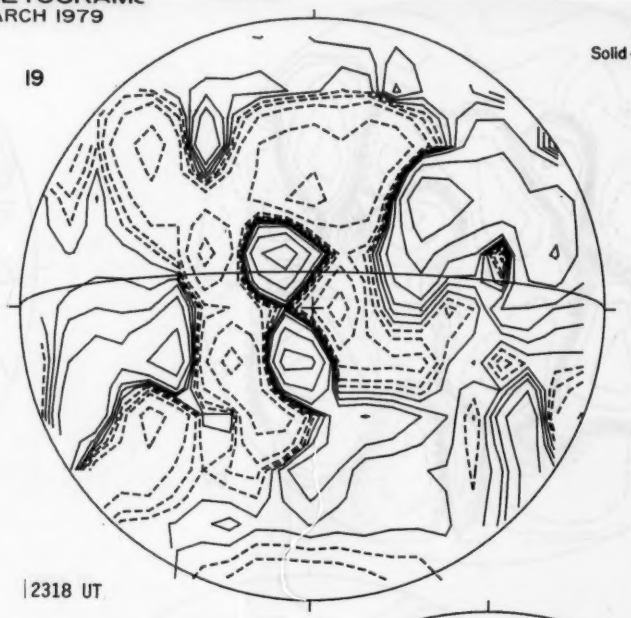
MAGNETOGRAMS
MARCH 1979

15



0029 UT

19

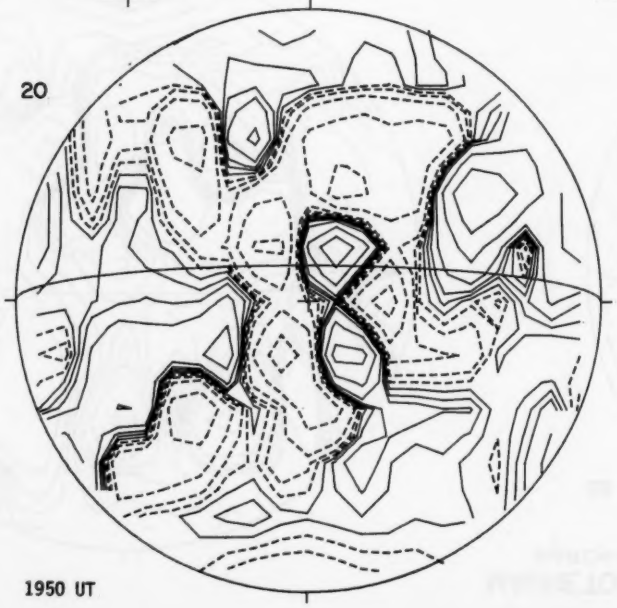


2318 UT

Solid - Plus; zero level
Dashed - Minus

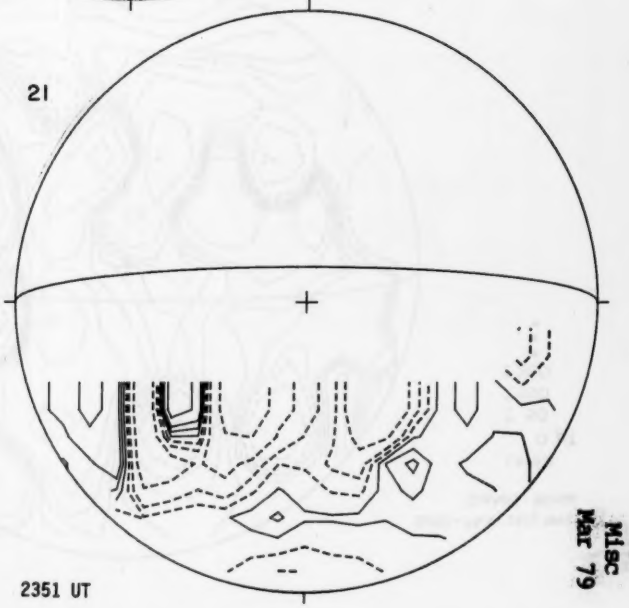
Levels
0 μT
± 50
± 100
± 200
• • •

20



1950 UT

21



2351 UT

55
Misc
Mar 79

STANFORD

MAGNETOGRAMS

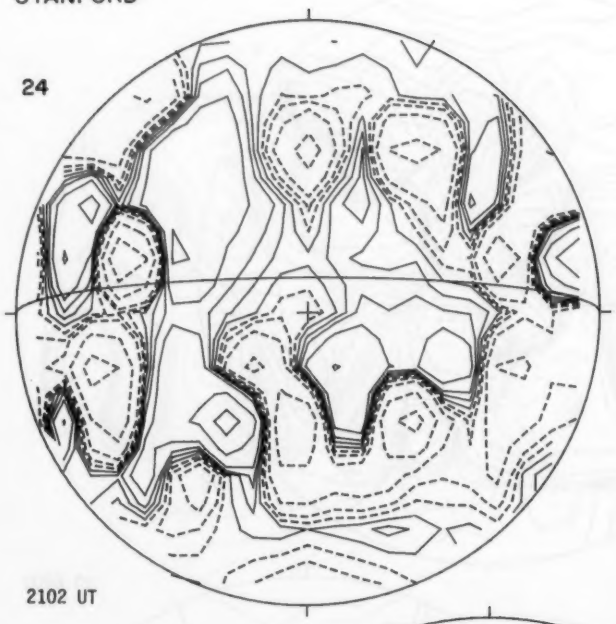
MARCH 1979

56
Misc
Mar 79

Solid - Plus; zero level
Dashed - Minus

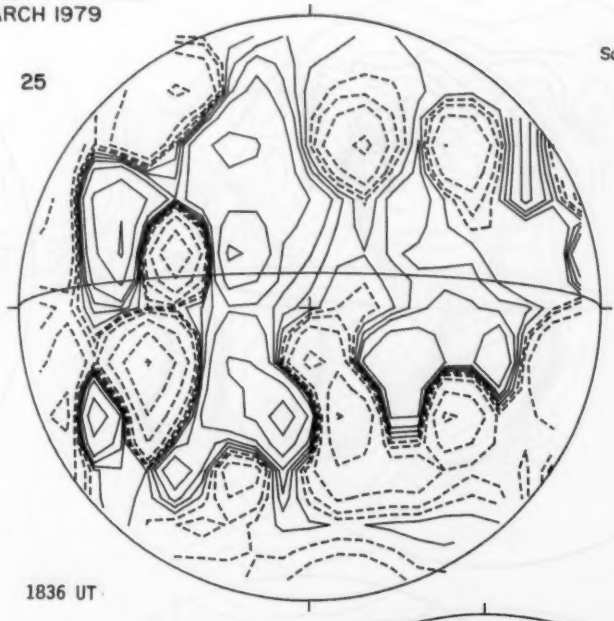
Levels
0 μT
± 50
± 100
± 200
• • •

24



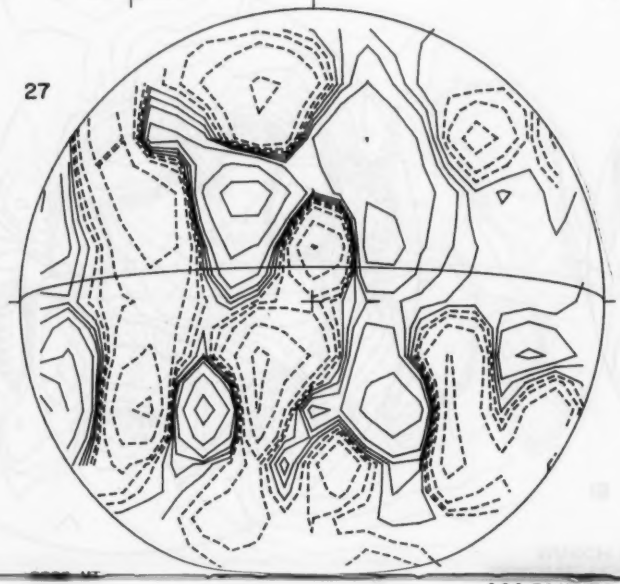
2102 UT

25

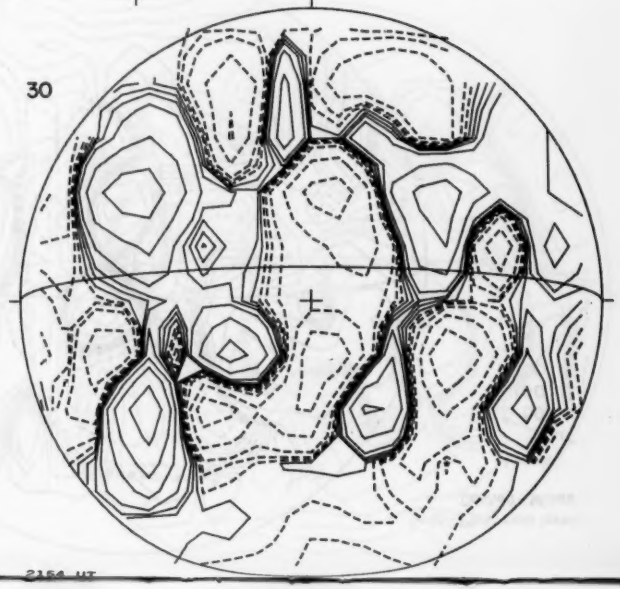


1836 UT

27



30



2154 UT

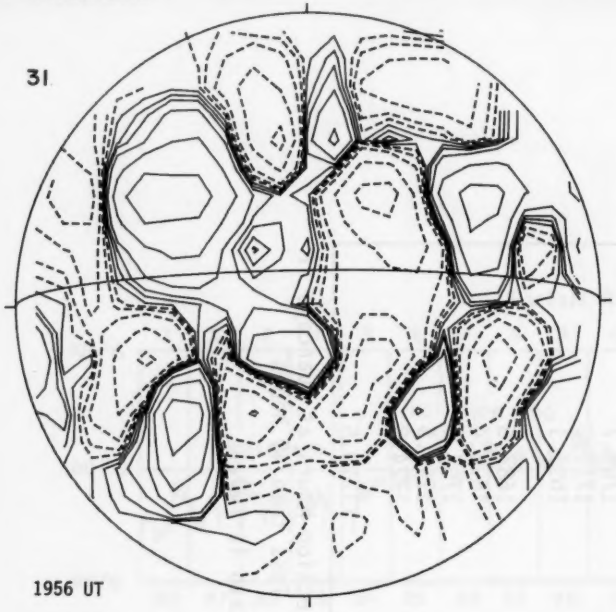
STANFORD

MAGNETOGRAMS

STANFORD

MAGNETOGRAMS
MARCH 1979

31



1956 UT

Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
$\pm$ 50
$\pm$100
$\pm$200

COSMIC RAY INDICES
(Neutron Monitors)
APRIL 1979

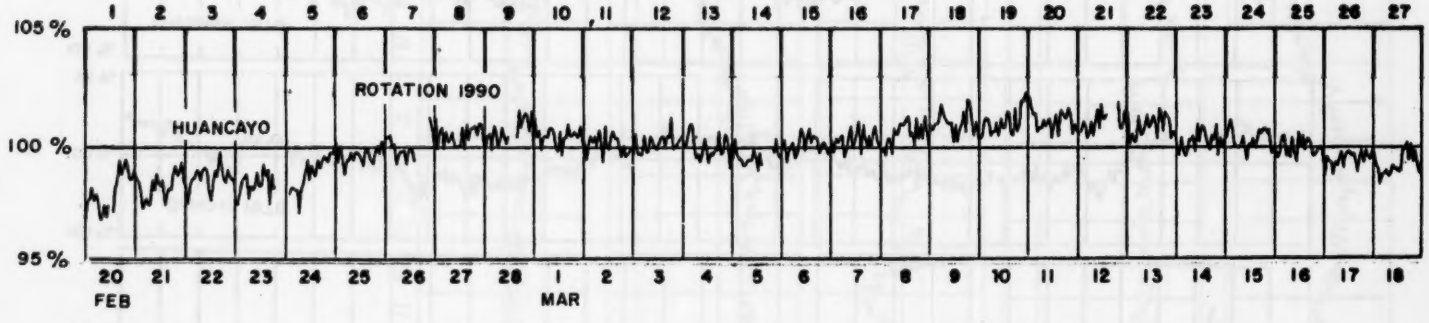
April 1979	HUANCAYO Average cts/hr
1	1722.7
2	1722.6 (36)
3	1718.4
4	1715.7
5	1687.1
6	1685.5
7	1687.6
8	1702.5
9	1702.5 (38)
10	1705.3
11	1714.5
12	1712.1
13	1708.7
14	1714.8 (34)
15	1715.0
16	1719.1 (38)
17	1721.2
18	1720.5
19	1722.3
20	1726.8
21	1726.9
22	1715.9
23	1709.7
24	1711.3
25	1697.1
26	1687.5
27	1698.4
28	1707.3
29	1712.5
30	1724.8
MEAN	1710.5

( ) is the number of section hours at Huancayo if sum of both sections is less than 40 hours.

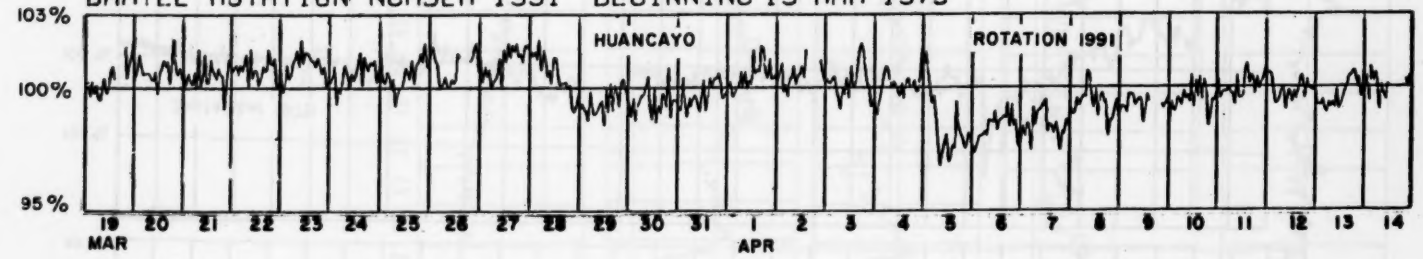
Scaling Factor at Huancayo is 100.

COSMIC RAY INDICES
(Neutron Monitors)

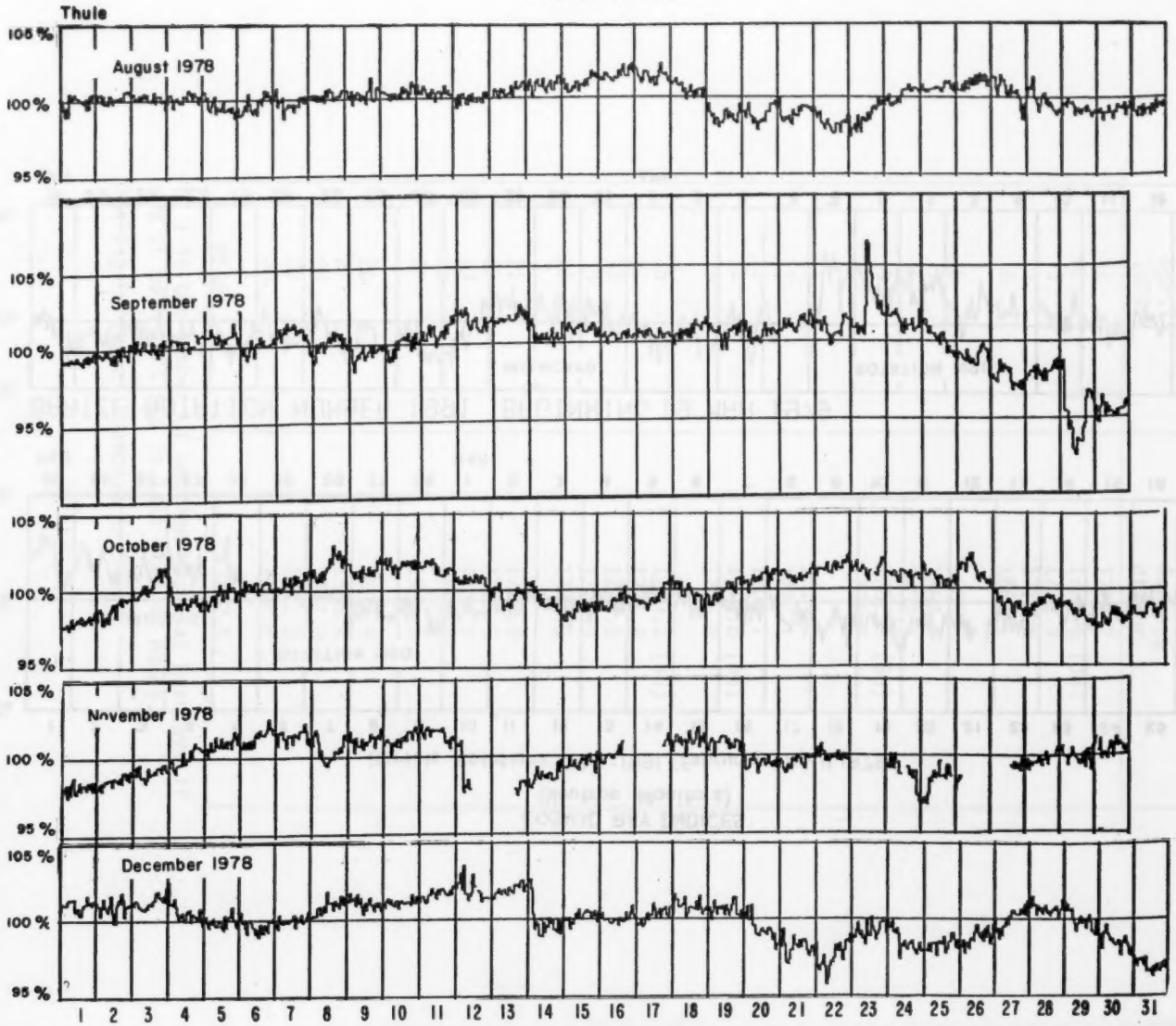
Bartels Rotations 1990-1991 (February - April 1979)



BARTEL ROTATION NUMBER 1991 BEGINNING 19 MAR 1979

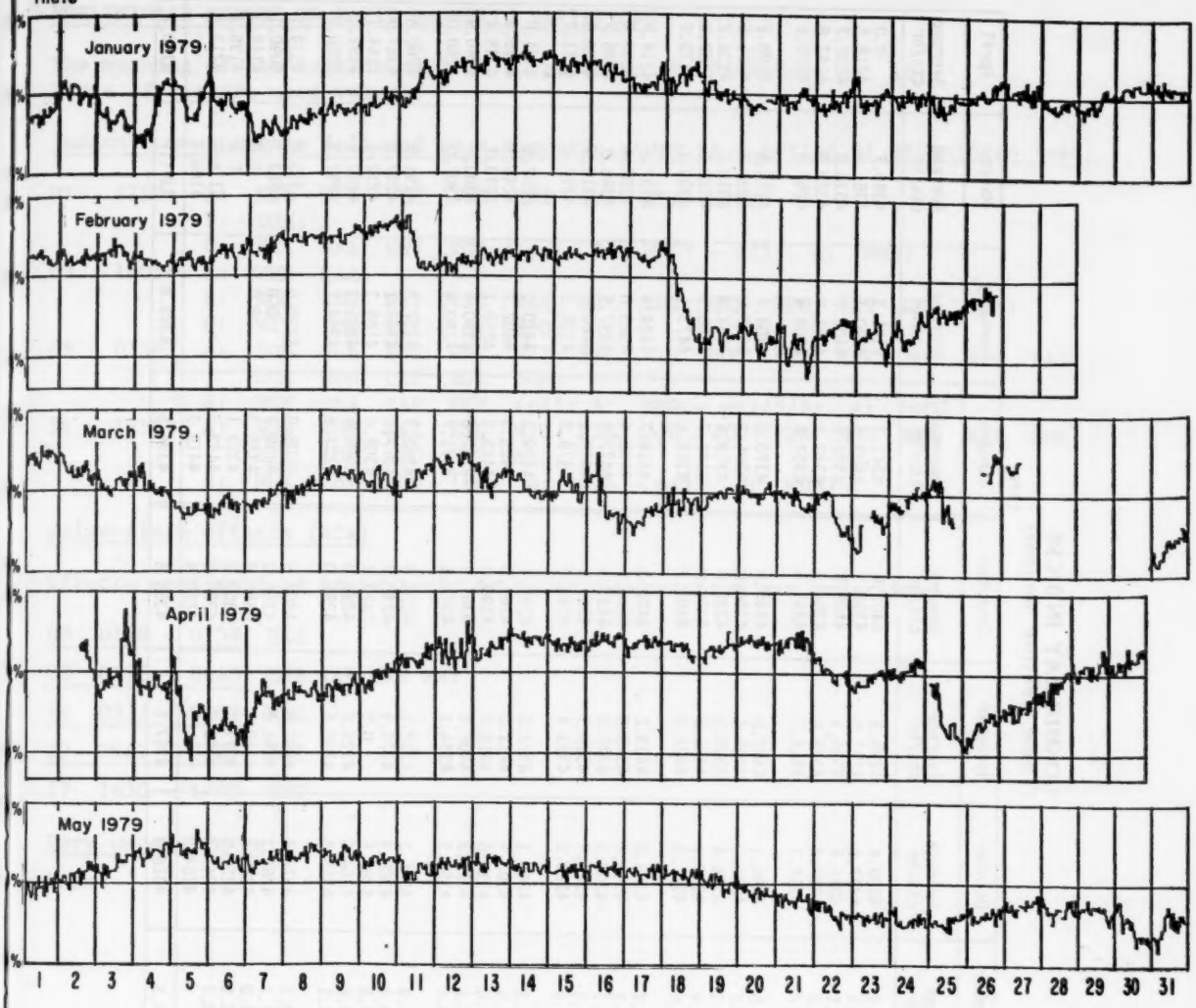


COSMIC RAY INDICES
(Neutron Monitors)



COSMIC RAY INDICES
(Neutron Monitors)

Thule



COSMIC RAY INDICES
(Thule Neutron Monitor)

	1978					1979			
Day	August	September	October	November	December	January	February	March	April
	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1	4511.5	4505.9	4239.6	4290.3	4402.4	4341.7	4391.3	4395.7	0.0
2	4521.8	4522.5	4277.5	4312.5	4395.9	4400.5	4390.1	4361.5	4218.5
3	4519.3	4540.5	4345.4	4335.3	4409.4	4328.8	4402.1	4328.0	4188.7
4	4518.0	4555.0	4298.4	4376.8	4384.3	4342.3	4381.4	4320.9	4147.8
5	4493.6	4565.7	4314.1	4414.5	4352.5	4382.8	4380.4	4257.3	4075.4
6	4498.6	4536.6	4336.1	4432.8	4340.9	4370.8	4404.7	4265.5	4028.2
7	4502.2	4570.1	4350.0	4435.1	4354.8	4296.2	4420.2	4285.1	4101.5
8	4523.9	4539.6	4395.4	4395.0	4392.8	4319.4	4441.4	4310.0	4126.2
9	4525.0	4513.9	4383.1	4421.3	4402.4	4347.7	4450.9	4350.5	4139.0
10	4529.2	4534.6	4396.3	4424.3	4406.3	4366.6	4473.1	4338.1	4170.8
11	4528.4	4575.2	4388.8	4439.2	4428.2	4414.7	4404.4	4337.6	4214.7
12	4509.5	4600.6	4353.4	4343.2	4437.5	4458.4	4375.0	4387.4	4238.2
13	4532.2	4607.7	4308.3	4288.5	4438.3	4477.5	4397.5	4348.8	4246.7
14	4549.3	4558.1	4301.7	4316.5	4353.3	4489.9	4402.8	4319.3	4268.9
15	4554.5	4574.1	4268.3	4353.1	4362.3	4476.3	4398.3	4317.4	4251.7
16	4577.6	4553.2	4292.1	4373.5	4357.4	4459.3	4410.5	4288.6	4261.0
17	4572.5	4556.9	4303.5	4411.0	4365.0	4425.3	4402.7	4240.7	4255.2
18	4534.9	4567.0	4318.8	4415.1	4390.0	4443.4	4259.1	4279.7	4245.4
19	4455.0	4562.6	4321.3	4406.5	4381.5	4397.6	4190.4	4300.8	4240.9
20	4460.7	4556.6	4359.5	4354.1	4325.5	4371.7	4180.4	4307.0	4260.3
21	4466.1	4585.9	4366.1	4352.5	4273.8	4382.7	4157.0	4291.9	4260.6
22	4435.2	4574.9	4388.4	4370.9	4247.9	4377.8	4208.1	4257.2	4187.1
23	4452.5	4637.4	4384.5	0.0	4320.3	4388.8	4185.3	4212.4	4164.1
24	4517.0	4595.8	4364.5	4325.2	4291.8	4386.9	4205.3	4292.1	4192.1
25	4539.4	4542.1	4356.5	4296.5	4282.0	4371.6	4254.7	4297.3	4060.5
26	4554.6	4488.1	4374.3	4298.8	4302.5	4406.0	4295.6	4393.0	4039.1
27	4529.5	4427.7	4281.1	4346.2	4356.0	4408.3	0.0	4383.7	4090.1
28	4500.6	4444.0	4285.3	4360.8	4384.4	4375.3	0.0	0.0	4144.3
29	4478.4	4316.0	4257.3	4371.1	4352.2	4382.1		0.0	4196.3
30	4475.0	4328.2	4243.4	4393.9	4289.2	4423.6		4116.0	4213.1
31	4479.5		4264.8		4220.4	4419.3		4168.0	
MEAN	4511.1	4534.5	4326.3	4367.6	4354.8	4394.6	4340.8	4301.7	4180.2

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

APRIL 1979

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-News nr. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

01	2150:	A:	NUR WIT VIC FUR MMB EBR HUA MPO;
		B:	DUM;
		C:	KAK HAZ KNY KGL (bps: A: WNG? - pil: A: MMB)
03	1001:	A:	MMB KSA;
		B:	NUR WNG WIT VIC KAK HAZ KNY HUA MPO CZT KGL DUM;
		C:	WIT EBR (si: A: SOD)
05	0156:	A:	SOD NUR ESK WNG WIT VIC FUR DOU MMB EBR TOL KSA HAZ
			HUA MPO CZT KGL DUM;
		B:	NGK HAD KAK KNY (pil: A: MMB - pc2/3/4: A: MMB)
24	2358:	A:	SOD NUR ESK WNG WIT HAD DOU VIC FUR MMB EBR KAK KSA
			HAZ HUA MPO CZT KGL;
		B:	NGK KNY DUM (bp: B: TOL - pil: A: MMB)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

03 0118 - 0138 HAZ

03 0415 - 0440 MMB KAK HAZ KNY

16 0511 - 0523 HAZ

27 0642 - 0725 KNY

27 1630 - 1708 WNG

Very unusual events

none

Hα SOLAR FLARES

DECEMBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
284 YUNN	01	0200	0205	0210	N13	W80	.985	15673	25.1	10	-N		C				Y5
285 CULG	01	0210	0215	0221	N08	W17	.315	15681	29.8	11	-F		C	0215	30	.3	Y5
286 RAMY	01	1214E	1214	1259	S17	E31	.580	15687	3.8	45D	-N	2	C		19		Y5
	01	1228	1237	NO FLARE PATROL													
GRP70287	01	1436	1448 1458	1508	S17	E33	.604	15687	4.1	32	1N						E
HTPR	01	1436	1448	1508	S17	E36	.639	15687	4.3	32	1N		C	1448	180	2.2	E
RAMY	01	1450E	1458U	1507	S17	E30	.567	15687	3.9	17D	-B	3	C		80		
	01	1551	1558	NO FLARE PATROL													
	01	0000	0009	NO FLARE PATROL													
GRP70288	01	1955+0	1955+1	2011	S16	E32	.585	15687	4.2	16	-B				90	1.1	
RAMY	01	1955	1955	2017	S17	E34	.616	15687	4.4	22	-B	3	C		133		FDE
HOLL	01	1955	1956	2005	S16	E31	.573	15687	4.2	10	-B	3	C		58		
GRP70289	01	2205	2233+2	2257	S16	E26	.511	15687	3.9	52	-N						
PALE	01	2205	2233	2256	S17	E27	.531	15687	3.9	51	-B	3	C		118		DE F
CULG	01	2229E	2235	2257	S15	E26	.504	15687	3.9	28D	-F		P	2235	20	.2	
GRP70290	01	2342+2	2345+1	0006	S17	E25	.507	15687	3.9	24	-N						
CULG	01	2342	2345	0006	S17	E23	.483	15687	3.7	24	-N		C	2345	60	.7	
VORO	01	2343	2345	0002	S16	E25	.499	15687	3.9	19	-N		C	2349	99	1.1	E
PALE	01	2344	2346	0013D	S17	E27	.531	15687	4.0	29D	-B	3	C		31		DE F
GRP70291	02	0244>9	0253 0300	0311	S17	E24	.494	15687	3.9	27	-F						F
CULG	02	0244	0253	0307	S17	E23	.482	15687	3.8	23	-F		C	0253	70	.8	F
YUNN	02	0255	0300	0315	S18	E25	.514	15687	4.0	20	-N		C				
GRP70292	02	0338>9	0407 0441+3	0500	S17	E27	.530	15687	4.2	82	1N				240	2.8	F
CULG	02	0338	0441	0516	S18	E28	.550	15687	4.3	98	-N		C	0441	150	1.8	
YUNN	02	0358	0444	0500	S18	E24	.503	15687	4.0	62	1N		C		292	173.0	
MANI	02	0405E	0407U	0422D	S17	E30	.566	15687	4.4	17D	-N	3	V		50	.6	
PEKG	02	0435E	0441	0500	S16	E29	.547	15687	4.4	25D	1B		P		294	178.0	
MANI	02	0438E	0438U	0455	S15	E24	.477	15687	4.0	17D	-N	3	V		100	1.2	F
GRP70293	02	0547+2	0549 0555+7	0626	S16	E24	.485	15687	4.0	39	1N				280	3.2	FU
YUNN	02	0547	0555	0625	S18	E23	.491	15687	4.0	38	1N		C		283	162.0	
PEKG	02	0548	0557	0626	S15	E26	.503	15687	4.2	38	2N		P		505	293.0	U
CULG	02	0549	0602	0637	S17	E24	.494	15687	4.0	48	1N		C	0602	210	2.4	F
MANI	02	0549	0549U	0615D	S15	E25	.490	15687	4.1	26D	-N	3	V		120	1.4	F
GRP70294	02	0733+2	0739+2	0808	S16	E27	.522	15687	4.3	35	-N						
CULG	02	0733	0741	0812D	S16	E27	.522	15687	4.3	39D	-N		C	0741	40	.5	
TEHR	02	0735	0739	0743D	S18	E29	.561	15687	4.5	8D	-B	1	C		127		FDE
KANZ	02	0740E		0803	S16	E26	.510	15687	4.3	23D	-N	1					
295 KANZ	02	0917	0920	0942	S17	E26	.518	15687	4.3	25	-N	1					Y5
296 RAMY	02	1403	1404	1414	S26	W46	.786	15692	29.1	11	-N	2	C		34		Y5
	02	1442	1504	NO FLARE PATROL													
297 RAMY	02	1520	1525	1527	S20	E31	.599	15687	5.0	7	-N	2	C		69		Y5
298 RAMY	02	1523	1524	1534	S26	W47	.795	15692	29.1	11	-N	2	C		16		Y5
	02	1609	1626	NO FLARE PATROL													
299 RAMY	02	1713	1714	1720	S26	W48	.803	15692	29.1	7	-N	2	C		34		Y5
300 RAMY	02	1843	1844	1853	S17	E22	.470	15687	4.4	10	-N	3	C		42		F Y5
301 RAMY	02	1911	1917	1924	S17	E22	.470	15687	4.4	13	-B	3	C		36		Y5
	02	2221	2255	NO FLARE PATROL													
	02	0142	0148	NO FLARE PATROL													

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS AREA Mill of Disk	CORR AREA Sq. Deg.		
GRP70302	02	2315+1	2317+1	2330	S16	W61	.887	15678	28.4	15	-N				35	.7	DJ	
CULG	02	2315	2318	2337	S16	W60	.879	15678	28.5	22	-N		C	2318	40	.9		
VORO	02	2316	2317	2322	S17	W63	.903	15678	28.2	6	-N		C	2317	27		DJ	
303 KANZ	03	0747	0751	0754	S25	W56	.865	15692	29.1	7	-F	1						Y5
304 KANZ	03	0917	0921	0928	N18	W25	.501	15682	1.5	11	-N	2						Y5
GRP70305	03	1048+3	1116 1151	1205	N20	E54	.831	15691	7.5	77	-N						J	
KANZ	03	1048	1116	1158	N19	E52	.810	15691	7.4	70	-N	2					EF	
LVOV	03	1051	1151	1211	N22	E57	.861	15691	7.7	80	1F		C	1151	200	3.9	J	
306 KANZ	03	1134	1134	1142	S23	E67	.935	15694	8.5	8	-B	2					D	Y5
	03	1501	1514	NO FLARE PATROL														
307 RAMY	03	1542	1546	1550	S18	E04	.327	15687	4.0	8	-N	3	C		29			Y5
308 HUAN	03	1628	1631	1634	S18	E03	.324	15687	3.9	6	-F	1	C	1631	40	.4	E	Y5
GRP70309	03	1839+0	1839+1	1845	S23	E65	.923	15694	8.7	6	-N				20			
PALE	03	1839E	1839U	1845	S23	E64	.917	15694	8.6	6D	-N	3	C		15			
HOLL	03	1839	1839	1844	S23	E66	.929	15694	8.7	5	-N	3	C		19			
RAMY	03	1839	1840	1846	S23	E65	.923	15694	8.7	7	-B	3	C		19			
310 RAMY	03	1938	1939	1952	N17	E44	.723	15691	7.1	14	-N	3	C		35		F	Y5
GRP70311	03	2032	2033	2044	S23	E65	.923	15694	8.7	12	-B				50			
PALE	03	2032	2033U	2042	S22	E65	.922	15694	8.7	10	-B	3	C		40		DE	
HOLL	03	2036E	2036U	2044	S23	E65	.923	15694	8.7	8D	-B	1	C		37			
RAMY	03	2037E	2037U	2045D	S25	E64	.920	15694	8.7	8D	-B	3	C		69			
	03	2307	0132	NO FLARE PATROL														
312 PEKG	04	0202	0204	0206	S16	E05	.297	15687	4.5	4	-F		P		126	66.0	E	Y5
313 PEKG	04	0545	0549	0600	S23	E62	.904	15694	8.9	15	1N		P		147	166.0	E	Y5
314 KANZ	04	0935	0935	0939	S22	E47	.778	15694	7.9	4	-F	1						Y5
315 KANZ	04	1054	1054	1105	S23	E57	.867	15694	8.7	11	-B	1						Y5
316 KANZ	04	1105	1105	1112	S15	W06	.286	15687	4.0	7	-F	1						Y5
317 KANZ	04	1229	1229	1237	S23	E58	.875	15694	8.9	8	-F	2						Y5
GRP70318	04	1320+0	1320+4	1327	S23	E58	.875	15694	8.9	7	-B				20	.4	D	
RAMY	04	1320	1324	1325D	S23	E53	.835	15694	8.5	5D	-B	3	V		19			
HUAN	04	1320	1322	1326	S23	E59	.882	15694	9.0	6	-N	2	C	1322	20	.4	D	
KANZ	04	1320	1320	1327	S23	E58	.875	15694	8.9	7	-B	2						
319 HUAN	04	1415	1418	1425	S16	W06	.302	15687	4.1	10	-F	1	C	1418	20	.2	D	Y5
GRP70320	04	1453+4	1509	1550	S18	W08	.344	15687	4.0	57	-N						EU	
RAMY	04	1453E	1509	1550	S18	W08	.344	15687	4.0	57D	1B	3	C		465		U F	
HUAN	04	1457		1520D	S17	W06	.317	15687	4.2	23D	-N	2	P	1512	120	1.3	E	
MCMA	04	1529E		1532D	S18	W08	.344	15687	4.0	3D	-N		P	1529	150	1.6	E	
321 RAMY	04	1522	1523	1531	S20	E05	.360	15687	5.0	9	-B	3	C		63		F	Y5
GRP70322	04	1550	1552	1605	S24	E54	.846	15694	8.7	15	-B				60	1.1	H	
RAMY	04	1550	1552	1605	S23	E50	.809	15694	8.4	15	-B	3	C		84		F	
MCMA	04	1558E		1604D	S25	E58	.879	15694	9.0	6D	-N		P	1558	35	.8	DH	
323 RAMY	04	1716	1729	1738	S18	W10	.358	15687	4.0	22	-N	3	C		27			Y5
324 HUAN	04	1718		1727	S23	E57	.867	15694	9.0	9	-F	1	C					Y5
325 HUAN	04	1753		1814	S23	E57	.867	15694	9.0	21	-F	1	C					Y5
326 RAMY	04	1819	1819	1829	S30	W23	.610	15684	3.0	10	-N	3	C		29			Y5
GRP70327	04	1844	1846	1857	S24	E51	.821	15694	8.6	13	-B						EH	
RAMY	04	1844	1846	1857	S23	E47	.781	15694	8.3	13	-B	3	C		91		H	
MCMA	04	1852E		1855D	S25	E56	.864	15694	9.0	3D	1B		P	1853	100	2.1	EH	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	04	2127	2145	NO FLARE PATROL													
	04	0207	0225	NO FLARE PATROL													
	04	0254	0310	NO FLARE PATROL													
	04	0316	0328	NO FLARE PATROL													
	04	0523	0600	NO FLARE PATROL													
	04	0618	0826	NO FLARE PATROL													
328 CULG	04	2257	2307	2316	N14	W80	.985	15679	29.0	19	-F		C	2307	40		Y5
GRP70329	05	0011+3	0018+1 0037	0055	S25	E46	.779	15694	8.5	44	-B				110	1.7	H
CULG	05	0011	0019	0102	S26	E51	.827	15694	8.8	51	1N		C	0019	120	2.0	
VORO	05	0014	0018	0033	S24	E41	.727	15694	8.1	19	-B		C	0018	108	1.8	DH
VORO	05	0034	0037	0047	S24	E41	.727	15694	8.1	13	-B		C	0037	90	1.5	DH
330 VORO	05	0114	0116	0125	S20	W03	.352	15687	4.8	11	-N		C	0116	27	.3	D Y5
331 CULG	05	0349	0355	0406	S26	E50	.818	15694	8.9	17	-F		C	0355	40	.7	Y5
GRP70332	05	0715>9	0746+3 0758	0822	S18	W17	.420	15687	4.0	67	-N						U
YUNN	05	0715	0749	0820	S18	W16	.410	15687	4.1	65	-N		C		173	91.0	
CULG	05	0733	0758U	0800D	S17	W20	.443	15687	3.8	27D	-N		P	0758	110	1.2	U
MANI	05	0742E	0746U	0810D	S18	W16	.410	15687	4.1	28D	-N	3	P		60	.6	F
ABST	05	0815E	0815	0823	S18	W19	.442	15687	3.9	8D	-F		P	0815	131	1.5	BE
333 CULG	05	0733E	0734U	0800D	S30	E45	.793		8.7	27D	-F		P	0734	60	.9	F Y5
334 CULG	05	0754	0755U	0800D	S27	W34	.678	15684	2.8	6D	-F		P	0755	40	.5	Y5
335 RAMY	05	1228	1236	1245	S18	W20	.453	15687	4.0	17	-B	3	C		24		F Y5
336 RAMY	05	1426	1427	1433	S18	W21	.464	15687	4.0	7	-N	3	C		42		F Y5
337 RAMY	05	1426	1428	1430	S23	E38	.691	15694	8.5	4	-N	3	C		23		Y5
338 RAMY	05	1637	1637	1641	S30	W35	.708	15684	3.1	4	-N	3	C		17		Y5
	05	1835	1838	NO FLARE PATROL													
GRP70339	05	1839	1847+0	1903D	S18	W23	.487	15687	4.1	24	-B				150	1.7	U
HOLL	05	1839	1847	2003	S18	W23	.487	15687	4.1	84	1B	2	C		207		U
RAMY	05	1843E	1847	1903	S18	W24	.499	15687	4.0	20D	-B	3	C		104		DE
340 RAMY	05	1940	1942	2013	S30	W36	.717	15684	3.1	33	-N	3	C		30		F Y5
	05	2103	2125	NO FLARE PATROL													
GRP70341	05	2244>9	2320+2	2334	S18	W25	.511	15687	4.1	50	-B				120	1.4	EJ
CULG	05	2244	2322	2334	S16	W25	.494	15687	4.1	50	-N		C	2322	140	1.6	
HOLL	05	2315	2320	0000	S18	W25	.511	15687	4.1	45	-B	1	C		103		
VORO	05	2318E		2329	S18	W26	.523	15687	4.0	11D	-B		C	2318	116	1.3	EJ
342 CULG	05	2327	2334	0000	N17	E14	.368	15691	7.0	33	-N		C	2334	130	1.4	Y5
GRP70343	06	0006+0	0008+1	0017	S30	W39	.742	15684	3.1	11	-N				130	1.9	EJ
CULG	06	0006	0009	0023	S30	W40	.750	15684	3.0	17	-F		C	0009	100	1.5	
VORO	06	0006	0008	0010	S30	W39	.742	15684	3.1	4	1B		C	0008	161	2.3	EJ
344 VORO	06	0124	0126	0131	S16	W24	.481	15687	4.3	7	-N		C	0126	45	.5	EJ Y5
345 CULG	06	0359	0407	0422	S20	W18	.452	15687	4.8	23	-F		C	0407	30	.3	F Y5
346 CULG	06	0419	0421	0450	S24	E73	.964	15696	11.7	31	-F		C	0421	50		Y5
GRP70347	06	0428	0433	0454	S25	E31	.632	15694	8.5	26	-F						F
CULG	06	0428	0433	0454	S25	E32	.642	15694	8.6	26	-F		C	0433	70	.9	F
PURP	06	0435E		0435D	S25	E31	.632	15694	8.5		1F		C				
348 YUNN	06	0505	0525	0620	S18	W28	.545	15687	4.1	75	-N		C				Y5
349 KANZ	06	0920	0935	1008	S15	W36	.626	15687	3.7	48	-F	1					Y5
GRP70350	06	0931+5	0935+2	0940	S31	W45	.797	15684	3.0	9	-F						
KANZ	06	0931	0935	0939	S31	W45	.797	15684	3.0	8	-F	1					
HTPR	06	0936	0937	0941	S32	W46	.818	15684	3.0	5	-F		C	0937	30	.4	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRP70351	06	1040+1	1047+1	1059	S17	W32	.587	15687	4.0	19	-F						E
KANZ	06	1040	1047	1056	S17	W30	.563	15687	4.2	16	-F	1					
HTPR	06	1041	1048	1101	S18	W34	.617	15687	3.9	20	-F		C	1048	30	.4	E
GRP70352	06	1139>9	1142 1219	1225	S10	E90	1.000	15697	13.2	46	-F						
KANZ	06	1139	1142	1228	S11	E90	1.000	15697	13.2	49	-F	1					
HTPR	06	1217	1219	1222	S10	E90	1.000	15697	13.3	5	-F		C	1219	20		
353 RAMY	06	1347	1348	1354	S30	W46	.801	15684	3.1	7	-N	3	C		64		Y5
354 HTPR	06	1430	1448	1505	S20	E54	.835	15696	10.7	35	-F		C	1448	20	.3	Y5
355 RAMY	06	1545	1546	1555	S30	W47	.809	15684	3.1	10	-N	3	C		36		Y5
	06	1559	1605	NO FLARE PATROL													
	06	1823	1835	NO FLARE PATROL													
GRP70356	06	1846+8	1854+3	1911	S17	W37	.647	15687	4.0	25	-N				70	.9	
MCMA	06	1846E	1857	1900D	S17	W38	.659	15687	3.9	14D	-N	*	C	1857	70	1.0	E
RAMY	06	1854	1854	1911	S18	W37	.652	15687	4.0	17	-B	*	C		74		F
357 MCMA	06	1847	1850	1900D	S24	E24	.554	15694	8.6	13D	-B		C	1850	50	.6	E Y5
	06	1912	1920	NO FLARE PATROL													
	06	0633	0640	NO FLARE PATROL													
358 MCMA	06	1935		1948D	N21	E85	.997	15700	13.2	13D	-N		P	1938			E Y5
GRP70359	06	1938+4	1943	2002	S17	W37	.647	15687	4.0	24	-B				150	2.0	HU
MCMA	06	1938E		1948D	S17	W38	.659	15687	4.0	10D	-N		P	1940	100	1.4	EH
RAMY	06	1942	1943	2002	S18	W37	.652	15687	4.0	20	1B	2	C		213		U F
360 RAMY	06	1949	1950	1955	S30	W49	.825	15684	3.2	6	-N	2	C		44		Y5
GRP70361	06	2000E	2017 2030	2135	N20	E78	.980	15700	12.7	95	?B						
CULG	06	2000E	2017	2135	N20	E80	.986	15700	12.8	95D	?B		C	2017	200		
	IMP.2 IMP.S																
PALE	06	2024E	2030U	2135D	N21	E76	.974	15700	12.6	71D	-N	3	C		41		DE
GRP70362	06	2002+0	2006+2	2021	S27	W51	.829	15684	3.0	19	-F				35	.6	
CULG	06	2002	2006	2017	S25	W53	.839	15684	2.9	15	-F		C	2006	40	.7	
RAMY	06	2002	2008	2025	S30	W49	.825	15684	3.2	23	-N	2	C		27		
GRP70363	06	2100+2	2107+5	2134	S15	E79	.983	15697	12.8	34	-B						
PALE	06	2100	2112	2136D	S16	E79	.983	15697	12.8	36D	-N	3	C		56		DE
CULG	06	2102	2107	2132	S15	E80	.986	15697	12.9	30	1B		C	2107	140		
364 CULG	06	2103	2114	2120	N14	W68	.931	15682	1.8	17	-F		C	2114	60	1.5	Y5
GRP70365	06	2325	2342+2	0001	S14	E77	.976	15697	12.8	36	1N						J
CULG	06	2325	2344	0030	S15	E77	.976	15697	12.8	65	1F		C	2344	80		
VORO	06	2335E		2350D	S14	E78	.980	15697	12.8	15D	1F		C	2338	233		EJ
PALE	06	2340	2342	2358	S14	E77	.976	15697	12.8	18	-B	3	C		28		FDE
MANI	06	2355E	2355U	0001D	S14	E78	.980	15697	12.8	6D	-F	2	V		20	.5	F
366 CULG	07	0144	0147	0156	S16	E80	.986	15697	13.1	12	-F		C	0147	40		Y5
367 CULG	07	0218	0228	0240	N23	E03	.391	15691	7.3	22	-F		C	0228	40	.4	Y5
368 CULG	07	0246	0255	0316	S19	W05	.338	15689	6.7	30	-F		C	0255	20	.2	Y5
369 CULG	07	0346	0353	0409	N18	W01	.307	15691	7.1	23	-N		C	0353	40	.4	Y5
GRP70370	07	0420+9	0456 0503	0540	S18	W42	.708	15687	4.0	80	-F						
YUNN	07	0420	0503	0532	S18	W42	.708	15687	4.0	72	-N		C				
CULG	07	0429	0511	0547	S15	W48	.764	15687	3.6	78	-F		C	0511	60	.9	
PURP	07	0450E	0456	0500D	S20	W37	.662	15687	4.4	10D	-F		C				
371 CULG	07	0515	0516	0522	N14	W73	.959	15682	1.7	7	-N		C	0516	30		Y5
372 CULG	07	0556	0601	0611	S22	W05	.385	15689	6.9	15	-N		C	0601	110	1.2	Y5
373 CULG	07	0618	0633	0659	N14	W77	.976	15682	1.5	41	-F		C	0633	30		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
GRP70374	07	0703+8	0723+6	0740	S16	E76	.973	15697	13.0	37	-N							
YUNN	07	0703	0725	0744	S16	E74	.964	15697	12.8	41	-N		C					
CULG	07	0711	0723	0736	S16	E78	.980	15697	13.1	25	1F		C	0723	100			
375 YUNN	07	0807	0821	0829	S16	E74	.964	15697	12.9	22	-N		C					Y5
GRP70376	07	0820+3	0832 0855	0909	N21	E67	.931	15700	12.4	49	-F						D	
HTPR	07	0820	0832	0845	N21	E70	.947	15700	12.6	25	-F		C	0832	30	.7		
KANZ	07	0823		0932	N21	E67	.931	15700	12.4	69	-N	1						
ABST	07	0853E	0855	0909D	N21	E67	.931	15700	12.4	16D	-F		P	0855	70		D	
377 KANZ	07	0908	0920	0932	S30	W55	.869	15684	3.3	24	-F	2						Y5
GRP70378	07	0956+2	1000	1023	S16	W47	.756	15687	3.9	27	1B						E	
KANZ	07	0956	1000	1023	S15	W47	.753	15687	3.9	27	1B	2						
HTPR	07	0958		1000D	S17	W48	.769	15687	3.8	2D	1B		C	1000	180	2.7	E	
379 KHAR	07	1132E		1210D	N18	E68	.934	15700	12.6	38D	?N		P	1138	110		BHQ	Y5
	IMP.1 NO 1 KANZ																	
380 KHAR	07	1148	1152	1205	N23	W03	.391	15691	7.3	17	-F		P	1155	100		D	Y5
381 LVOV	07	1227	1230	1237	S16	W50	.787	15687	3.8	10	-F		C	1230	100	1.8	D	Y5
382 KANZ	07	1307	1311	1319	S30	W57	.882	15684	3.3	12	-F	1						Y5
	07	1349	1428	NO FLARE PATROL														
	07	1558	1604	NO FLARE PATROL														
	07	1611	1647	NO FLARE PATROL														
383 HUAN	07	1717		1724	S15	E66	.920	15697	12.7	7	-F	1	C					Y5
	07	1822	1835	NO FLARE PATROL														
	07	1909	1912	NO FLARE PATROL														
	07	1918	1923	NO FLARE PATROL														
	07	1928	1950	NO FLARE PATROL														
384 CULG	07	1950E	2002U	2055	S14	E74	.964	15697	13.4	65D	1N		P	2002	180		B	Y5
385 CULG	07	2033	2035	2042	N24	W07	.420	15691	7.3	9	-B		C	2035	160	1.8	V	Y5
386 CULG	07	2055	2107	2113D	N18	W11	.356	15691	7.0	18D	-N		C	2107	40	.4		Y5
	07	2113	2214	NO FLARE PATROL														
387 CULG	07	2224	2231	2251	S27	W68	.943	15684	2.8	27	1N		C	2231	90			Y5
388 CULG	07	2317	2321	2338	S22	E04	.382	15694	8.3	21	-N		C	2321	10	.1		Y5
GRP70389	07	2341	2346 2357	0035	S15	W57	.851	15687	3.7	54	2B				320	6.1		
VORO	08	0024E		0035	S15	W58	.859	15687	3.7	11D	-N		C	0024	45	.8	D	
CULG	07	2341	2346	0041	S13	W58	.857	15687	3.6	60	2B		C	2346	390	7.4		
MITK	07	2345E		0032	S16	W56	.844	15687	3.8	47D	1B		C	2345	250	4.3		
PALE	07	2354E	2357	0013D	S16	W52	.807	15687	4.1	19D	-B	2	C		26		FDE	
390 YUNN	08	0022	0052	0120	S23	E02	.392	15694	8.2	58	-N		C					Y5
GRP70391	08	0048+2	0050+2	0104	S16	E67	.927	15697	13.1	16	1N				90		DJ	
VORO	08	0048	0050	0059	S15	E67	.926	15697	13.1	11	1N		C	0050	81		DJ	
MITK	08	0050	0052	0108	S17	E68	.934	15697	13.1	18	1B		C	0052	110			
392 YUNN	08	0110		0208	S18	W53	.820	15687	4.1	58	-N		C					Y5
393 YUNN	08	0243	0250	0310	S30	W66	.936	15684	3.2	27	-F		C					Y5
GRP70394	08	0332>9	0401+2	0410	S28	W71	.958	15684	2.8	38	1N				130			
YUNN	08	0332	0403	0410	S30	W67	.941	15684	3.1	38	-N		C		110	97.0		
CULG	08	0357	0401	0410	S26	W75	.973	15684	2.5	13	1N		C	0401	150			
395 VORO	08	0348	0349	0353	S16	W61	.885	15687	3.6	5	-N		C	0349	45	.9	DH	Y5
396 YUNN	08	0407	0410	0430	N21	E56	.853	15700	12.4	23	-N		C					Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRP70397	08	0438+9	0450+3	0508	S16	W58	.861	15687	3.8	30	-N						
CULG	08	0438	0450	0510	S14	W62	.890	15687	3.5	32	-N		C	0450	40	.9	
YUNN	08	0447	0453	0505	S19	W55	.840	15687	4.1	18	-N		C				
398 YUNN	08	0538	0542	0600	N21	E55	.845	15700	12.4	22	-N		C				Y5
GRP70399	08	0612+1	0614+1	0622	S16	W59	.869	15687	3.8	10	-N						
CULG	08	0612	0614	0626	S13	W63	.897	15687	3.5	14	-N		C	0614	50	1.1	
YUNN	08	0613	0615	0618	S19	W55	.840	15687	4.1	5	-N		C				
400 PEKG	08	0625	0627	0630	S30	W68	.946	15684	3.2	5	-N		P		942	42.0	D Y5
401 CULG	08	0641	0644	0653	S27	W74	.969	15684	2.7	12	-F		C	0644	20		Y5
402 YUNN	08	0725	0745	0750	N21	E54	.836	15700	12.4	25	-N		C				Y5
403 YUNN	08	0840	0852	0913	N21	E53	.827	15700	12.3	33	-N		C				Y5
404 YUNN	08	0932	0940	0953D	S17	E59	.870	15697	12.8	21D	-N		C				Y5
	08	1306	1311	NO FLARE PATROL													
	08	1340	1342	NO FLARE PATROL													
405 HUAN	08	1351		1438D	S22	W04	.380	15694	8.3	47D	-F	1	P	1355	75	.8	E Y5
	08	1400	1409	NO FLARE PATROL													
	08	1438	1510	NO FLARE PATROL													
	08	1746	1755	NO FLARE PATROL													
406 PALE	08	1809	1826	1841	S23	W07	.407	15694	8.2	32	-N	3	C		30		DE Y5
GRP70407	08	1902+1	1905+0	1910	S30	W77	.981	15684	3.0	8	-N				20		
PALE	08	1902	1905	1910	S30	W77	.981	15684	3.0	8	-B	3	C		22		DE
HOLL	08	1903	1905	1909	S30	W77	.981	15684	3.0	6	-N	3	C		19		F
	08	1924	1931	NO FLARE PATROL													
	08	0920	0940	NO FLARE PATROL													
408 HOLL	08	1952	1954	2000	S30	W77	.981	15684	3.1	8	-B	3	C		40		Y5
409 HOLL	08	2006	2007	2011	S15	E54	.823	15697	12.9	5	-N	3	C		18		F Y5
GRP70410	08	2043	2043 2103	2106D	S22	W07	.391	15694	8.3	23	-B						
HOLL	08	2043	2043	2106	S22	W07	.391	15694	8.3	23	-B	3	C		30		F
HUAN	08	2046E		2056D	S22	W07	.391	15694	8.3	10D	-N	1	P	2049	85	.9	E
CULG	08	2050E	2103	2136	S21	W08	.381	15694	8.3	46D	-F		P	2103	60	.7	
GRP70411	09	0021+3	0025+0	0031	S17	W70	.945	15687	3.8	10	-N				50		
CULG	09	0021	0025	0035	S17	W70	.945	15687	3.8	14	-N		C	0025	70		
PALE	09	0024	0025	0027	S18	W70	.945	15687	3.8	3	-N	3	C		42		
GRP70412	09	0030	0035+1	0049	S17	W12	.352	15694	8.1	19	-N						
YUNN	09	0030	0035	0055	S17	W12	.352	15694	8.1	25	-N		C				
PALE	09	0031E	0036	0043	S17	W12	.352	15694	8.1	12D	-N	3	C		26		
413 CULG	09	0059	0137U	0140D	N33	W80	.989	0	3.0	41D	?N		P	0137	120		S Y5
	IMP.1 NO : PALE MANI																
GRP70414	09	0108+2	0112+1	0117	N24	E43	.745	15700	12.3	9	-N				110	1.7	U
CULG	09	0108	0113	0130	N23	E43	.740	15700	12.3	22	-N		C	0113	120	1.8	T
PURP	09	0110	0112	0115	N24	E52	.827	15700	12.9	5	-F		C				
PALE	09	0112E	0113	0117	N24	E42	.735	15700	12.2	5D	-B	3	C		100		U
415 YUNN	09	0127	0130	0155	S29	W75	.974	15684	3.4	28	-N		C				Y5
416 CULG	09	0450	0453	0502	N23	E40	.710	15700	12.2	12	-F		C	0453	60	.8	T Y5
417 CULG	09	0533	0534	0550	N19	E41	.701	15700	12.3	17	-F		C	0534	50	.7	T Y5
418 YUNN	09	0647	0705	0743	N21	E42	.721	15700	12.4	56	?N		C		188	144.0	Y5
	IMP.1 NO : CULG																
GRP70419	09	0738+5	0741+4	0755	S17	W17	.403	15694	8.0	17	1N				220	2.4	D
CULG	09	0738	0741	0803	S17	W18	.414	15694	8.0	25	-B		C	0741	150	1.7	
PEKG	09	0740	0741	0750	S17	W17	.403	15694	8.0	10	1N		P		294	160.0	D
YUNN	09	0743	0745	0755	S17	W15	.382	15694	8.2	12	-N		C				

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LON. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
420 YUNN	09	0805	0807	0930	N21	E41	.710	15700	12.4	85	?N		C		251	186.0		Y5
	IMP.1 NO : HTPR																	
421 KANZ	09	0935	0939	0941	S29	W80	.988	15684	3.4	6	-B	1					D	Y5
422 KANZ	09	0958	1001	1004	S29	W80	.988	15684	3.4	6	-B	1					D	Y5
423 HTPR	09	1040	1042	1048	S17	E47	.758	15697	13.0	8	-F		C	1042	10	.2		Y5
424 HTPR	09	1043	1053	1115	N24	E33	.644	15700	11.9	32	-F		C	1053	50	.6	E	Y5
GRP70425	09	1056+2	1101+2	1127	S14	E43	.704	15697	12.7	31	-N				140	2.0	E	
KANZ	09	1056	1103	1125	S13	E43	.701	15697	12.7	29	1N	2						
HTPR	09	1058	1101	1128	S14	E39	.656	15697	12.4	30	-B		C	1101	140	1.8	E	
MONT	09	1104E	1104	1119D	S14	E44	.716	15697	12.8	15D	-N		C	1104	150			
426 HUAN	09	1518		1528	N23	E41	.720	15700	12.7	10	-F	1	C	1522	30	.4		Y5
427 HUAN	09	1545	1549	1553	S25	W14	.475	15694	8.6	8	-F	1	C	1549	20	.2	D	Y5
	09	1643	1656	NO FLARE PATROL														
	09	0816	0858	NO FLARE PATROL														
	09	0920	0926	NO FLARE PATROL														
428 RAMY	09	1834	1835	1918	N21	E36	.656	15700	12.5	44	-F	3	C		24		F	Y5
GRP70429	09	1933>9	1937	2020	N21	E36	.656	15700	12.5	47	-F							
RAMY	09	1933	1937	2026	N21	E36	.656	15700	12.5	53	-N	3	C		26		F	
HUAN	09	2007		2014	N21	E37	.667	15700	12.6	7	-F	2	C	2010	60	.8	E	
430 RAMY	09	1934	1935	1947	S19	W21	.469	15694	8.2	13	-F	3	C		23			Y5
431 RAMY	09	2000	2006	2023	S19	W21	.469	15694	8.3	23	-F	3	C		43		F	Y5
GRP70432	09	2050+1	2051+2	2103	N21	E35	.645	15700	12.5	13	-N				50	.7	F	
RAMY	09	2050	2051	2112	N21	E35	.645	15700	12.5	22	-B	3	C		46		F	
HOLL	09	2050	2051	2103	N22	E35	.651	15700	12.5	13	-B	2	C		29		F	
HUAN	09	2051	2053	2059	N21	E36	.656	15700	12.6	8	-F	1	C	2053	65	.9	E	
433 HOLL	09	2146	2146	2151	S16	W25	.490	15694	8.0	5	-N	2	C		19		F	Y5
434 CULG	09	2340	2356	0017	S16	E39	.664	15697	12.9	37	-F		C	2356	30	.4		Y5
435 VORO	10	0119	0120	0126	S16	W28	.527	15694	8.0	7	-F		C	0120	54	.6	DHJ	Y5
436 VORO	10	0138	0140	0153	N17	W38	.659	15691	7.2	15	-F		C	0140	45	.6		Y5
GRP70437	10	0204+2	0207+4	0218	S31	W90	1.000	15684	3.3	14	-N						DH	
VORO	10	0204	0211	0218	S32	W90	1.000	15684	3.3	14	-N		C	0211	45		DH	
PALE	10	0206	0207	0208D	S31	W90	1.000	15684	3.3	2D	-N	2	C					
MANI	10	0207E	0207U	0215D	S30	W90	1.000	15684	3.3	8D	-F	3	P					
438 YUNN	10	0205	0214	0218	S19	W77	.977	15687	4.3	13	?N		C					Y5
	IMP.1 NO : MANI VORO																	
GRP70439	10	0210+2	0211+2	0216	S14	E36	.618	15697	12.8	6	-N						D	
VORO	10	0210	0211	0216	S13	E36	.614	15697	12.8	6	-N		C	0211	54	.6	D	
YUNN	10	0212	0213	0215	S16	E37	.639	15697	12.9	3	-N		C					
440 VORO	10	0325	0328	0336	N14	W40	.670	15691	7.1	11	-N		C	0328	18	.2	D	Y5
441 VORO	10	0352	0355	0359D	S14	E42	.692	15697	13.3	7D	-F		P	0355	90	1.2		Y5
GRP70442	10	0444+1	0446+4 0515	0525	S15	E37	.635	15697	13.0	41	1B				190	2.5		
PEKG	10	0444	0446	0510	S16	E37	.639	15697	13.0	26	1B		P		168	109.0		
YUNN	10	0445	0450	0522	S16	E36	.627	15697	12.9	37	2N		C		220	140.0		
PURP	10	0445E	0450	0528	S15	E37	.635	15697	13.0	430	1B		C					
PEKG	10	0513	0515	0525	S15	E43	.707	15697	13.4	12	-N		P		42	29.0	D	
443 PURP	10	0640E	0641	0643D	S14	E34	.593	15697	12.8	3D	-F		C					Y5
GRP70444	10	0824+1	0824+6	0836	S12	E36	.610	15697	13.0	12	-N							
HTPR	10	0824	0828	0836	S10	E36	.603	15697	13.1	12	-N		C	0828	80	1.0	E	
KANZ	10	0824E	0824	0830	S10	E39	.643	15697	13.3	6D	-B	2						
KANZ	10	0824	0830	0834	S15	E34	.598	15697	12.9	10	-F	2					F	
YUNN	10	0825	0830	0844	S16	E34	.603	15697	12.9	19	1N		C		220	148.0		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
445 YUNN	10	0840	0900	0915	S17	W28	.534	15694	8.3	35	-N		C				Y5
446 KANZ	10	1016	1016	1026	S17	W28	.534	15694	8.3	10	-F	1					Y5
GRP70447	10	1044+2	1053+3	1103	N17	W44	.727	15691	7.1	19	-F						
KANZ	10	1044	1056	1103	N18	W43	.720	15691	7.2	19	-N	2					
HTPR	10	1046	1053	1103	N16	W45	.735	15691	7.1	17	-F		C	1053	20	.3	
448 KANZ	10	1048	1056	1101	S17	W29	.546	15694	8.3	13	-F	2					Y5
GRP70449	10	1108+0	1112+3	1130	S14	E29	.527	15697	12.6	22	-F						E
HTPR	10	1108	1112	1135	S14	E27	.501	15697	12.5	27	-F		C	1112	30	.3	E
KANZ	10	1108	1115	1125	S15	E31	.559	15697	12.8	17	-N	2					
GRP70450	10	1147	1227 1234	1305	S17	W31	.571	15694	8.2	78	-N						F
KANZ	10	1147	1227	1305	S17	W31	.571	15694	8.2	78	-N	1					
RAMY	10	1233E	1234	1238D	S18	W32	.589	15694	8.1	5D	-B	2	C		44		F
GRP70451	10	1309+4	1313+2	1326	S10	E35	.590	15697	13.2	17	-N						E
KANZ	10	1309	1313	1329	S09	E37	.614	15697	13.3	20	-B	2					
HTPR	10	1313	1315	1322	S11	E33	.567	15697	13.0	9	-N		C	1315	50	.6	E
452 HUAN	10	1503E		1549D	S18	W34	.613	15694	8.1	46D	-N	2	P	1505	50	.6	Y5
GRP70453	10	1503+1	1505	1508	N21	E26	.546	15700	12.6	5	-F						
HTPR	10	1503	1505	1508	N21	E26	.546	15700	12.6	5	-F		C	1505	40	.4	
HUAN	10	1504		1508D	N22	E27	.566	15700	12.7	4D	-F	2	P	1507	110	1.3	
454 HOLL	10	1634	1634	1641	S16	W34	.603	15694	8.1	7	-N	2	C		25		F Y5
455 MCMA	10	1658	1659	1710	N21	E28	.568	15700	12.8	12	-N		C	1659	80	1.0	E Y5
	10	1746	1756	NO FLARE PATROL													
	10	0522	0531	NO FLARE PATROL													
	10	0626	0652	NO FLARE PATROL													
	10	0743	0800	NO FLARE PATROL													
GRP70456	10	1810+7	1820	1828	S15	E30	.546	15697	13.0	18	-N				130	1.5	HU
MCMA	10	1810E		1823D	S14	E32	.567	15697	13.2	13D	-N		P	1820	125	1.6	EH
HOLL	10	1817	1820	1828	S16	E28	.527	15697	12.9	11	-B	2	C		127		U F
457 HOLL	10	1827	1827	1831	S18	W53	.819	15689	6.8	4	-N	2	C		62		F Y5
GRP70458	10	1832+2	1836 1919+7	1947	S19	W34	.619	15694	8.2	75	-N						FU
HOLL	10	1832	1919	1932	S16	W35	.615	15694	8.1	60	-B	2	C		102		U
RAMY	10	1834	1836	1852	S23	W32	.623	15694	8.4	18	-N	2	C		61		
RAMY	10	1926	1926	1935	S23	W33	.634	15694	8.3	9	-N	2	C		19		F
HOLL	10	1933	1947	1958	S16	W36	.627	15694	8.1	25	-B	*	C		120		F
459 HOLL	10	1844	1846	1848	S18	W53	.819	15689	6.8	4	-N	2	C		32		F Y5
GRP70460	10	1939+1	1940+2	1950	S15	E27	.507	15697	12.8	11	-N				70	.8	F
HOLL	10	1939	1942	1946	S16	E27	.514	15697	12.8	7	-B	3	C		75		F
RAMY	10	1940	1940	1953	S15	E27	.507	15697	12.8	13	-N	2	C		65		F
GRP70461	10	1950+8	2001+3 2028	2045	S17	W36	.632	15694	8.1	55	-B				70	.9	Z
RAMY	10	1950	2001	2034	S23	W33	.634	15694	8.4	44	-B	*	C		26		
HOLL	10	1958	2002	2042	S16	W36	.627	15694	8.1	44	-B	*	C		114		Z F
CULG	10	2000E	2004U	2100	S15	W35	.610	15694	8.2	60D	-N	*	C	2004	70	.9	
PALE	10	2010E		2013D	S18	W36	.637	15694	8.1	3D	-N	*	C		65		DE
RAMY	10	2028	2028	2045	S18	W41	.695	15694	7.8	17	-N	*	C		107		F
462 RAMY	10	2001	2001	2031	S15	E27	.507	15697	12.9	30	-N	2	C		68		Y5
463 CULG	10	2105	2113	2121	N22	E15	.448	15700	12.0	16	-F		C	2113	60	.7	Y5
464 CULG	10	2109	2110	2134	N18	W50	.792	15691	7.1	25	-F		C	2110	60	.9	Y5
GRP70465	10	2229+4	2237 2245	2300	S18	E12	.364	15696	11.8	31	-N						F
CULG	10	2229	2245	2253U	S19	E11	.369	15696	11.8	24D	-N		C	2245	100	1.1	F
HOLL	10	2233	2237	2300	S18	E14	.382	15696	12.0	27	-B	2	C		103		F
466 CULG	10	2258	2309	2338	S10	E19	.363	15697	12.4	40	-N	*	C	2309	60	.7	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.		
467 VORO	10	2327E		2338	S18	E09	.339	15696	11.7	11D	?N		C	2327	367	4.0	BJ	Y5
	IMP.1 NO : CULG HOLL																	
GRP70468	10	2332+0	2357+6 2422	0119	S13	E29	.522	15697	13.2	107	2N						IJ	
PEKG	11	0007E	0022	0050	S11	E30	.525	15697	13.3	43D	2N	*	P		547	320.0	E	
PURP	11	0036	0043	0133	S13	E29	.521	15697	13.2	57	1N	*	C					
VORO	10	2332	2403	0107	S14	E27	.501	15697	13.0	95	2F	*	P	2403	708	8.2	EJ	
CULG	10	2332	2357	0130U	S13	E28	.508	15697	13.1	118D	2N	*	C	2357	620	7.1	FI	
PALE	10	2338E	2339	2342D	S13	E33	.575	15697	13.5	4D	-N	*	C		47		FDE	
469 VORO	10	2337	2338	2339	S16	W40	.675	15694	8.0	2	-N		C	2338	18	.2	D	Y5
GRP70470	11	0035>9	0042 0054	0105	S18	W90	1.000	15687	4.3	30	-N						HJ	
CULG	11	0035	0042	0108	S16	W90	1.000	15687	4.3	33	1N		C	0042	60			
VORO	11	0053	0054	0102	S20	W90	1.000	15687	4.3	9	-N		C	0054	81		HJ	
471 VORO	11	0141	0142	0145	S16	W40	.675	15694	8.1	4	-N		C	0142	18	.2	DJ	Y5
472 VORO	11	0150	0150	0153	S16	W40	.675	15694	8.1	3	-N		C	0150	27	.3	DJ	Y5
473 CULG	11	0216	0218	0222	S20	E21	.476	15697	12.7	6	-N		C	0218	120	1.4		Y5
GRP70474	11	0341+1	0347+5	0404	S17	E23	.471	15697	12.9	23	-F							
CULG	11	0341	0347	0411	S18	E23	.480	15697	12.9	30	-F		C	0347	70	.8		
YUNN	11	0342	0352	0357	S16	E23	.463	15697	12.9	15	-N		C					
475 YUNN	11	0350	0352	0410	S17	W39	.667	15694	8.2	20	-N		C					Y5
GRP70476	11	0406+7	0410+6	0434	S16	E23	.463	15697	12.9	28	-N				170	1.9	E	
CULG	11	0406	0416	0500	S16	E23	.463	15697	12.9	54	-N	*	C	0416	140	1.6		
PEKG	11	0409	0413	0430	S15	E23	.454	15697	12.9	21	1N	*	P		210	118.0	E	
YUNN	11	0409	0410	0437	S16	E23	.463	15697	12.9	28	-N	*	C		157	89.0		
PURP	11	0413	0414	0430	S16	E22	.450	15697	12.8	17	-N	*	C					
GRP70477	11	0420+3	0425+0	0439	N24	E16	.483	15700	12.4	19	1N				210	2.4	E	
YUNN	11	0420	0425	0442	N21	E19	.474	15700	12.6	22	-F		C					
CULG	11	0422	0425	0540	N26	E16	.508	15700	12.4	78	1N		C	0425	220	2.5		
PURP	11	0422	0425	0436	N23	E16	.471	15700	12.4	14	-N		C					
PEKG	11	0423	0425	0435	N25	E13	.474	15700	12.2	12	1N		P		210	120.0	E	
478 YUNN	11	0502	0503	0507	N21	E18	.465	15700	12.6	5	-N		C					Y5
479 YUNN	11	0620	0622	0625	S19	E10	.359	15696	12.0	5	-N		C					Y5
480 YUNN	11	0652	0700	0740	S17	W40	.679	15694	8.3	48	-N		C					Y5
481 YUNN	11	0758	0815	0828	N21	E17	.455	15700	12.6	30	-N		C					Y5
482 HONT	11	0926E	0926	0934	S17	W42	.702	15694	8.2	8D	-N		C	0926	70			Y5
483 HONT	11	1003	1007	1035	S17	W42	.702	15694	8.3	32	-N		C	1007	70		E	Y5
GRP70484	11	1055	1057	1123	S14	E19	.394	15697	12.9	28	-N						E	
HONT	11	1055	1057	1125	S14	E19	.394	15697	12.9	30	-N		C	1057	180		E	
KANZ	11	1102E		1121	S14	E19	.394	15697	12.9	19D	-N	2					E	
485 HTPR	11	1156E		1206D	S10	E22	.405	15697	13.1	10D	-F		C	1159	10	.1		Y5
	11	1206	1214	NO FLARE PATROL														
	11	1240	1255	NO FLARE PATROL														
	11	1311	1338	NO FLARE PATROL														
	11	1355	1451	NO FLARE PATROL														
486 RAMY	11	1532	1533	1537D	S18	W48	.770	15694	8.0	5D	-N	2	C		18			Y5
	11	1537	1556	NO FLARE PATROL														
	11	1603	1702	NO FLARE PATROL														
	11	0616	0626	NO FLARE PATROL														
	11	0825	0835	NO FLARE PATROL														
	11	0850	0900	NO FLARE PATROL														
	11	0920	0926	NO FLARE PATROL														
487 BIGB	11	1710	1713	1720	N26	E09	.466	15700	12.4	10	-N		C	1713	65			Y5
488 BIGB	11	1720	1723	1731	N22	E14	.442	15700	12.8	11	-N		C	1723	50			Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF	TYPE	TIME UT	MEAS AREA Mill of Disk	CORR AREA Sq Deg.	
GRP70489	11	1750+0	1814+0	1832	S19	W49	.783	15694	8.1	42	1N				160	2.6	UZ
RAMY	11	1750	1814	1832	S19	W51	.802	15694	7.9	42	-B	3	C		141		DE
BIGB	11	1750	1814	1825	S19	W49	.783	15694	8.1	35	-N		C	1814	390		
HOLL	11	1807E	1814	2325	S16	W48	.764	15694	8.2	318D	1N	3	C		162		Z U
GRP70490	11	1806+6	1810+3	1824	N21	E11	.406	15700	12.6	18	-N				100	1.1	F
RAMY	11	1806	1810	1823	N21	E11	.406	15700	12.6	17	-B	3	C		95		F
BIGB	11	1807	1811	1825	N20	E12	.399	15700	12.7	18	-N		C	1811	130		
HOLL	11	1812	1813	1824	N21	E11	.406	15700	12.6	12	-N	3	C		59		F
GRP70491	11	1833>9	1921+4 1947	2157	S16	W50	.785	15694	8.0	204	2B				700	11.3	UZ
HOLL	11	1807E	1925	2325	S16	W48	.764	15694	8.2	318D	2B	*	C		888		Z U
RAMY	11	1833	1947	2100	S19	W52	.812	15694	7.9	147	1B	*	C		305		DE
BIGB	11	1911	1921	2113	S18	W50	.790	15694	8.0	122	-N	*	C	1921	520		
CULG	11	2000E	2000E	2210	S15	W48	.762	15694	8.2	130D	2N	*	P	2000	390	6.3	
BIGB	11	2122	2134	2143	S16	W53	.814	15694	7.9	21	-N	*	C	2134	25		
GRP70492	11	1923>9	1928 1942+6	2014	S15	E14	.344	15697	12.9	51	1B						UZ
HOLL	11	1833	1942	2018	S17	E14	.368	15697	12.8	105	2B	3	C		859		Z U
BIGB	11	1923	1928U	1928D	S15	E15	.356	15697	12.9	5D	-N		C	1928	120		
BIGB	11	1930	1948	2010	S15	E16	.367	15697	13.0	40	1N		C	1948	230		
RAMY	11	1934	1942	1957D	S15	E14	.344	15697	12.9	23D	1B	2	C		317		DE
493 BIGB	11	2001	2005	2012	N19	E09	.363	15700	12.5	11	-N		C	2005	35		Y5
	IMP.1 NO : HOLL CULG																
494 BIGB	11	2210	2224	2255	S18	W53	.819	15694	7.9	45	?N	*	C	2224	195		Y5
495 HOLL	11	2221	2222	2253	N21	E08	.387	15697	12.5	32	-N	3	C		26		F Y5
496 HOLL	11	2221	2222	2226	S17	E12	.349	15700	12.8	5	-B	3	C		24		Y5
GRP70497	11	2257+1	2307+4	2338	S20	E02	.338	15696	12.1	41	-N				60	.6	
BIGB	11	2257	2311	2346	S21	E03	.356	15696	12.2	49	-N		C	2311	65		
CULG	11	2258	2307	2330	S20	E01	.336	15696	12.0	32	-N		C	2307	60	.7	
498 MITK	12	0008	0016	0028	S19	W53	.820	15694	8.0	20	?F		C	0016	120	2.1	ET Y5
	IMP.1 NO : CULG																
499 MITK	12	0040	0042	0049	S19	W53	.820	15694	8.1	9	1N		C	0042	130	2.2	T Y5
500 PEKG	12	0125E	0128	0133	S17	E23	.470	15697	13.8	8D	-N		P		126	72.0	E Y5
GRP70501	12	0129+1	0135+2 0143	0200	S18	W52	.809	15694	8.2	31	1B				260	4.4	E
MITK	12	0129	0137	0220	S19	W53	.820	15694	8.1	51	1B		C	0137	210	3.6	T
YUNN	12	0130		0130D	S17	W52	.806	15694	8.2		1N		C		236	208.0	
PEKG	12	0135E	0135	0158	S17	W52	.806	15694	8.2	23D	2B		P		336	283.0	E
PURP	12	0138	0143	0200	S20	W55	.840	15694	7.9	22	2N		C		491	408.0	
502 YUNN	12	0245		0245D	G16	E10	.315	15697	12.9		?N		C		330	169.0	Y5
	IMP.1 NO : MITK																
GRP70503	12	0250>9	0309+4	0330	S19	W54	.829	15694	8.1	40	1B				180	3.2	E
PEKG	12	0250	0309	0325	S17	W54	.825	15694	8.1	35	1B		P		210	182.0	E
PURP	12	0300	0310	0330	S21	W54	.834	15694	8.1	30	1N		C				
MITK	12	0308	0313	0340	S19	W54	.829	15694	8.1	32	1B		C	0313	150	2.6	T
GRP70504	12	0335>9	0347+8	0400	S18	W54	.827	15694	8.1	25	1B						
PEKG	12	0335	0352	0358	S18	W54	.827	15694	8.1	23	1B		P		126	112.0	E
MITK	12	0343	0347	0400	S18	W56	.845	15694	8.0	17	-B		C	0347			DT
PURP	12	0347	0355	0401	S21	W54	.834	15694	8.1	14	1B		C				
GRP70505	12	0404	0433	0443D	S13	E15	.333	15697	13.3	39	1N						F
MITK	12	0404	0433	0540	S13	E15	.333	15697	13.3	96	1N		C	0433	210	2.3	F
MANI	12	0435E	0435U	0443	S13	E16	.345	15697	13.4	8D	-N	3	C		30		
506 YUNN	12	0432		0432D	S17	W54	.825	15694	8.1		?N		C		281	221.0	Y5
	IMP.1 NO : MITK																
507 MITK	12	0456	0459	0501	S18	W57	.854	15694	7.9	5	-F		C	0459			ET Y5
GRP70508	12	0505	0507 0525	0539	S17	W56	.843	15694	8.0	34	-B						
MITK	12	0505	0507	0541	S18	W57	.854	15694	7.9	36	-B		C	0507			ET
MANI	12	0523E	0525	0536	S16	W55	.833	15694	8.1	13D	-N	3	C		30		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
509 MITK	12	0547	0558	0618D	S18	W57	.854	15694	8.0	31D	?N		C	0558	200	3.9	ET	Y5
	IMP.1 NO : MANI																	
510 MANI	12	0645	0646	0655	S17	W54	.825	15694	8.2	10	-N	3	C		40			Y5
GRP70511	12	0646+0	0650+1	0656	S15	E07	.277	15697	12.8	10	-N							
YUNN	12	0646	0651	0657	S16	E08	.299	15697	12.9	11	-N		C					
MANI	12	0646	0650	0654	S14	E06	.255	15697	12.7	8	-N	3	C		20			
	12	0725	0735	NO FLARE PATROL														
GRP70512	12	0747	0755 0845	0930	S17	W56	.843	15694	8.1	103	-N						E	
YUNN	12	0747	0845	0930	S17	W55	.834	15694	8.2	103	1N		C		204	191.0		
MANI	12	0753E	0755	0804D	S16	W57	.851	15694	8.1	11D	-B	3	C		50			
ATHN	12	0825E	0825	0853	S17	W57	.852	15694	8.1	28D	-N	1		0825	66	1.1		
KHAR	12	0855E		0935D	S17	W56	.843	15694	8.2	40D	1N		P	0900	145		BET	
GRP70513	12	0838+8	0850+1	0853	N21	00	.367	15700	12.4	15	-F							
YUNN	12	0838	0850	0852	N22	E03	.386	15700	12.6	14	-N		C					
HTPR	12	0846	0851	0854	N20	W02	.352	15700	12.2	8	-F		C	0851	20	.2		
514 YUNN	12	0912	0922	0925	S16	E07	.292	15697	12.9	13	-N		C					Y5
GRP70515	12	0928+2	0959 1011	1045	S14	E06	.255	15697	12.8	77	-N						EK	
YUNN	12	0928	0950	0950D	S16	E07	.292	15697	12.9	22D	-N		C					
HTPR	12	0930	0959	1010	S11	E10	.250	15697	13.1	40	-F		C	0959	30	.3		
HTPR	12	1005	1011	1045	S14	E02	.236	15697	12.6	40	-N		C	1011	140	1.4	EK	
516 YUNN	12	0945	0949	0955	S17	W55	.834	15694	8.3	10	?N		C		157	138.0		Y5
	IMP.1 NO : HTPR																	
GRP70517	12	1002>9	1033 1159	1223	S17	W60	.877	15694	7.9	141	1N						E	
WEND	12	1002E		1152D	S17	W56	.843	15694	8.2	110D	2N		V		600	11.6	E	
HTPR	12	1024	1033	1100	S17	W60	.877	15694	7.9	36	-N		C	1033	100	2.0		
RAMY	12	1139E	1159	1312	S19	W71	.951	15694	7.2	93D	-B	2	C		71		F	
KHAR	12	1140E		1205D	S17	W57	.852	15694	8.2	25D	-F		P	1143	55		ET	
HUAN	12	1235		1255D	S16	W62	.891	15694	7.9	20D	-N	1	P	1237	30	.6		
HUAN	12	1300E		1331	S17	W62	.892	15694	7.9	31D	-F	1	P					
518 RAMY	12	1133	1133	1140	S15	E06	.270	15697	12.9	7	-N	2	C		46			Y5
GRP70519	12	1210+1	1211+2	1234	S16	E07	.292	15697	13.0	24	-N				40	.4	K	
HTPR	12	1210	1213	1236	S16	E07	.292	15697	13.0	26	-N		C	1213	60	.6	EK	
RAMY	12	1211	1211	1234	S15	E05	.264	15697	12.9	23	-B	3	C		44		F	
HUAN	12	1211	1213	1221	S16	E08	.299	15697	13.1	10	-N	2	C	1213	25	.3	D	
GRP70520	12	1231+3	1233+1	1253	N20	00	.350	15700	12.5	22	-N				45	.5		
RAMY	12	1231	1233	1305	N21	E00	.367	15700	12.5	34	-B	3	C		48		F	
HTPR	12	1234	1234	1240	N20	E01	.351	15700	12.6	6	-F		C	1234	40	.4	E	
GRP70521	12	1328+2	1332+0 1339	1400	S24	W55	.850	15694	8.4	32	-N						F	
RAMY	12	1328	1332	1401	S24	W55	.850	15694	8.4	33	-B	*	C		101		F	
HTPR	12	1330	1332	1400	S24	W55	.850	15694	8.4	30	-F	*	C	1332	20	.3		
HUAN	12	1330	1339	1354	S23	W54	.839	15694	8.5	24	-N	*	C	1339	60	1.1		
GRP70522	12	1402+0	1403+1	1406	N20	W06	.364	15700	12.1	4	-N				60	.6	E	
RAMY	12	1402	1403	1406	N21	E00	.367	15700	12.6	4	-B	3	C		78			
HTPR	12	1402	1404	1408	N20	W07	.368	15700	12.1	6	-N		C	1404	40	.4	E	
HUAN	12	1402	1403	1405	N20	W06	.364	15700	12.1	3	-N	2	C	1403	60	.6		
GRP70523	12	1412+0	1412+1	1416	N24	W06	.426	15700	12.1	4	-F							
HTPR	12	1412	1413	1416	N24	W07	.429	15700	12.1	4	-F		C	1413	10	.1		
HUAN	12	1412	1412	1415	N24	W06	.426	15700	12.1	3	-F	1	C	1412	50	.5		
524 RAMY	12	1414	1418	1425	S19	W72	.955	15689	7.2	11	-B	3	C		31			Y5
GRP70525	12	1414+4	1418+1	1433	S23	W55	.847	15694	8.5	19	-N				70	1.3		
RAMY	12	1414	1418	1440	S24	W55	.850	15694	8.5	26	-B	3	C		102		F	
HUAN	12	1418	1419	1426	S23	W56	.855	15694	8.4	8	-N	1	C	1419	50	.9	E	
GRP70526	12	1423+1	1424 1440	1515	N20	W02	.352	15700	12.4	52	-N						E	
HUAN	12	1423	1424	1441D	N21	E01	.367	15700	12.7	18D	-N	2	P	1424	65	.7	E	
HTPR	12	1424	1440	1515	N20	W05	.360	15700	12.2	51	-N		C	1440	130	1.3	E	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq Deg.	
GRP70527	12	1503>9	1514+4 1556	1620	S18	W61	.886	15694	8.1	77	1B						EKUZ
HUAN	12	1503	1518	1543	S17	W60	.877	15694	8.1	40	1B	*	C	1518	200	4.1	E
RAMY	12	1503	1514	1636	S19	W73	.960	15694	7.2	93	2B	*	C		423		
HOLL	12	1509	1514	1634D	S16	W59	.867	15694	8.2	85D	2B	*	C		508		Z U
HTPR	12	1514		1526D	S18	W62	.893	15694	8.0	12D	1B	*	C	1515	120	2.4	EFK
MCMA	12	1521E		1521D	S18	W59	.870	15694	8.2		1B	*	P	1521	150	3.2	E
BIGB	12	1551U	1556	1605	S18	W62	.893	15694	8.0	14D	1N	*	P	1556	180		
GRP70528	12	1503+0	1604 1618	1634	S22	W14	.430	15696	11.6	91	-N						E
HUAN	12	1503		1555	S22	W16	.447	15696	11.4	52	-N	2	C	1540	100	1.1	E
HTPR	12	1503		1526D	S22	W15	.438	15696	11.5	23D	-F		C	1510	50	.5	E
HOLL	12	1515	1618	1634D	S19	W11	.365	15696	11.8	79D	1B	3	C		393		FDE
MCMA	12	1521E		1521D	S23	W15	.451	15696	11.5		-N		P	1521	35	.4	E
BIGB	12	1556	1604	1635	S23	W13	.435	15696	11.7	39	-N		C	1604	160		
529 HUAN	12	1525	1534	1547	S11	E07	.218	15697	13.2	22	-N	2	C	1534	30	.3	Y5
530 RAMY	12	1617	1620	1638	S11	E09	.238	15697	13.4	21	-B	3	C		33		Y5
531 HUAN	12	1635		1652	S24	W15	.464	15696	11.6	17	-N	1	P	1646	130	1.5	E Y5
532 RAMY	12	1637	1641	1654	S19	W73	.960	15689	7.2	17	-B	3	C		24		Y5
GRP70533	12	1652	1654 1708	1729	S13	E05	.233	15697	13.1	37	-B						
RAMY	12	1652	1708	1721	S15	E02	.253	15697	12.9	29	-B	3	C		42		
RAMY	12	1653	1654	1729	S11	E08	.228	15697	13.3	36	-N	3	C		54		
534 RAMY	12	1655	1702	1718	S19	W73	.960	15689	7.2	23	-B	3	C		49		Y5
GRP70535	12	1726	1836+0	1900D	S19	W74	.965	15689	7.2	94	2B				240		
RAMY	12	1726	1836	1840D	S19	W74	.965	15689	7.2	74D	1B	4	C		98		
PALE	12	1836E	1836U	1900D	S17	W64	.907	15689	8.0	24D	2B	3	C		315		
PALE	12	1836E	1836U	1840D	S20	W77	.977	15689	7.0	4D	2B	2	V		237		
GRP70536	12	1730	1730+1	1742	S13	E05	.233	15697	13.1	12	-B						
RAMY	12	1730	1730	1735	S11	E08	.228	15697	13.3	5	-N	3	C		21		
RAMY	12	1731	1731	1742	S15	E02	.253	15697	12.9	11	-B	4	C		22		
537 RAMY	12	1753	1754	1801	N21	W02	.368	15700	12.6	8	-B	4	C		85		Y5
538 HUAN	12	1754	1755	1757	S18	W60	.878	15694	8.2	3	-N	2	C	1755	25	.5	D Y5
GRP70539	12	1841+9	1841 1856	1908	N21	W03	.370	15700	12.6	27	-B						
PALE	12	1841E	1841U	1900D	N21	W04	.372	15700	12.5	19D	-B	3	C		80		
RAMY	12	1850	1856	1908	N21	W03	.370	15700	12.6	18	-B	4	C		70		
540 RAMY	12	1841	1844	1859	S17	E14	.367	15697	13.8	18	-N	4	C		41		Y5
541 PALE	12	1926E	2018	2032D	S18	W65	.914	15694	7.9	66D	-N	3	C		104		DE Y5
GRP70542	12	2008	2012	2029	S13	E04	.227	15697	13.1	21	-B						
RAMY	12	2008	2012	2029	S11	E07	.218	15697	13.4	21	-B	3	C		105		
RAMY	12	2012	2012	2023	S15	E01	.251	15697	12.9	11	-B	3	C		60		
GRP70543	12	2053>9	2053 2136+1	2205D	S18	W66	.921	15694	7.9	72	1N				100		E
PALE	12	2053E	2053U	2056	S18	W65	.914	15694	8.0	3D	1B	3	C		256		DE
PALE	12	2056E	2136U	2300D	S19	W67	.928	15694	7.8	124D	1B	3	C		132		DE
BIGB	12	2133	2137	2140	S19	W66	.922	15694	7.9	7	-N		C	2137	65		
BIGB	12	2137E	2137	2140	S19	W66	.922	15694	8.0	3D	-N		C	2137	65		
BIGB	12	2148	2158	2205	S17	W65	.914	15694	8.0	17	-N		C	2158	40		
GRP70544	12	2130	2136+2	2150	S18	W05	.312	15697	12.5	20	-N				100	1.0	
BIGB	12	2130	2138	2150	S17	E00	.284	15697	12.9	20	-N		C	2138	100		
PALE	12	2136E	2136U	2149D	S20	W10	.372	15697	12.2	13D	-B	3	C		105		
545 BIGB	12	2200	2201	2202	N24	W19	.510	15699	11.5	2	-N		C	2201	90		Y5
546 BIGB	12	2202	2213	2218	N22	W14	.443	15700	11.9	16	-N		C	2213	50		Y5
547 BIGB	12	2210	2228	2251	S17	W65	.914	15694	8.0	41	1N		C	2228	180		Y5
548 BIGB	12	2244	2245	2248	S14	E00	.233	15697	12.9	4	-N		C	2245	20		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LON. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq Deg.	
GRP70549	12	2300+1	2306+1	2311D	S17	W67	.927	15694	7.9	11	1N				200		U
BIGB	12	2300	2306	2311	S17	W68	.933	15694	7.9	11	1N	*		2306	130		
PALE	12	2301	2307	2357D	S18	W66	.921	15694	8.0	56D	1B	*	C		270		UDE
GRP70550	13	0011+4	0014+5 0040+8	0103	S18	W67	.927	15694	8.0	52	1B						Z
MITK	13	0011	0014	0024	S19	W68	.934	15694	7.9	13	1N		C	0014	100		
MANI	13	0014E	0014U	0055	S17	W68	.932	15694	7.9	41D	-B	3	C		40		
PURP	13	0015	0019	0035	S21	W67	.930	15694	8.0	20	1N		C				
PALE	13	0017E	0018U	0103D	S18	W67	.927	15694	8.0	46D	1B	3	C		161		DE F
MITK	13	0034	0040	0102	S18	W68	.933	15694	7.9	28	1N		C	0040	110		EZ
PURP	13	0040	0048	0110	S21	W67	.930	15694	8.0	30	1N		C				
YUNN	13	0042E	0042	0042D	S17	W63	.899	15694	8.3		1B		C		188	205.0	
GRP70551	13	0105+0	0111+3 0121	0132	S22	W21	.494	15696	11.5	27	1N				350	4.0	Z
MITK	13	0105	0114	0129	S22	W21	.494	15696	11.5	24	1N		C	0114	260	3.1	Z
PURP	13	0105	0111	0132	S26	W22	.545	15696	11.4	27	2N		C		453	259.0	
YUNN	13	0105	0121	0152	S19	W15	.399	15696	11.9	47	1B		C		314	186.0	
GRP70552	13	0155+4	0206+9	0230	S16	W01	.266	15697	13.0	35	-N						
YUNN	13	0155	0215	0230	S16	E00	.265	15697	13.1	35	-N		C				
PURP	13	0159	0206	0230	S17	E02	.284	15697	13.2	31	1N		C				
MANI	13	0210E	0210U	0224D	S15	W04	.257	15697	12.8	14D	-N	3	C		20		
CULG	13	0218E	0218E	0244	S16	W03	.270	15697	12.9	26D	-N		P	0218	90	.9	B
	13	0156	0202	NO FLARE PATROL													
GRP70553	13	0202E	0211+0 0235+4	0259	S17	W68	.932	15694	8.0	57	2N				240		EZ
PURP	13	0150	0239	0308	S21	W68	.935	15694	8.0	78	1N	*	C				
MITK	13	0202E	0211	0220	S18	W69	.939	15694	7.9	18D	1N	*	C	0211	170		TZ
MANI	13	0210E	0211	0224D	S16	W69	.938	15694	7.9	14D	-B	*	C		60		
PURP	13	0216	0239	0307	S21	W68	.935	15694	8.0	51	2F	*	C		301		
CULG	13	0218E	0237	0256	S16	W68	.932	15694	8.0	38D	2N	*	C	0237	300	7.5	
MITK	13	0226	0235	0302	S18	W69	.939	15694	7.9	36	1N	*	C	0235	150		ET
PEKG	13	0228E	0235	0256	S18	W68	.933	15694	8.0	28D	2B	*	P		210		E
GRP70554	13	0218>9	0234+4	0302	N20	W06	.366	15700	12.6	44	1N				290	3.1	FU
CULG	13	0218E	0238	0258D	N20	W05	.362	15700	12.7	40D	1N		P	0238	210	2.3	U
MITK	13	0224	0234	0309	N20	W06	.366	15700	12.7	45	1N		C	0234	200	2.2	F
YUNN	13	0225	0235	0305	N21	W07	.386	15700	12.6	40	1N		C		377	204.0	
PEKG	13	0228	0235	0254	N21	W07	.386	15700	12.6	26	2N		P		631	339.0	U
GRP70555	13	0248+4	0254+1	0258	S20	E09	.363	15697	13.8	10	-F						E
YUNN	13	0248	0255	0258	S17	E09	.319	15697	13.8	10	-N		C				
CULG	13	0251	0254	0258D	S20	E08	.357	15697	13.7	7D	-F		C	0254	120	1.3	
MITK	13	0252	0255	0257	S20	E10	.370	15697	13.9	5	-F		C	0255			E
556 CULG	13	0333E	0333U	0337	S10	E01	.164	15697	13.2	4D	-N		P	0333	40	.4	Y5
GRP70557	13	0340+7	0431 0445>9	0622	S15	E01	.249	15697	13.2	162	2B						I
CULG	13	0340	0501	0816D	S14	E03	.237	15697	13.4	276D	2B		C	0501	910	9.6	FI
YUNN	13	0347	0455	0658	S16	W03	.270	15697	12.9	191	3N		C		1258	652.0	
PEKG	13	0411	0445	0615	S14	E05	.246	15697	13.5	124	3B		P		1389	654.0	
TEHR	13	0429E	0431U	0527	S11	W05	.199	15697	12.8	58D	1B	2	C		222		F
TEHR	13	0429E	0431U	0436D	S11	W05	.199	15697	12.8	7D	1B	2	C		222		
PURP	13	0507E		0507D	S20	E02	.333	15697	13.4		2N		C		1132	580.0	
MANI	13	0521E	0521U	0534D	S15	W01	.249	15697	13.1	13D	1B	3	C		400		FDE
MITK	13	0555E		0613D	S13	E03	.220	15697	13.5	18D	1F		P	0555	240	2.5	E
ABST	13	0601E	0607	0649D	S17	E08	.312	15697	13.9	48D	-F		P	0607	87	1.0	D
MANI	13	0646	0650	0654	S14	E06	.253	15697	13.7	8	-N	3	C		20		
GRP70558	13	0349+8	0408+2	0453	S17	W69	.938	15694	8.0	64	1B				180		DJ
PURP	13	0349	0409	0427D	S21	W69	.941	15694	8.0	38D	3B		C		415		
CULG	13	0352	0410	0454	S15	W69	.937	15694	8.0	62	1B		C	0410	170		J
PEKG	13	0355	0415	0453	S17	W69	.938	15694	8.0	58	-N		P		63		D
MITK	13	0357	0408	0427D	S18	W70	.944	15694	7.9	30D	1B		C	0408	190		T
TEHR	13	0429E	0431U	0447	S16	W76	.972	15694	7.5	18D	-B	2	C		95		
	13	0427	0429	NO FLARE PATROL													
559 SPURIOUS DATA. GROUP DELETED.																	
560 MANI	13	0435E	0435U	0443	S13	E16	.344		14.4	8D	-N	3	C		30		Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP70561	13	0513+7	0519+6	0609	S17	W71	.949	15694	7.9	56	1B						K	
TEHR	13	0513	0520U	0731	S16	W73	.959	15694	7.7	138	-B	2	C		95		F	
CULG	13	0516	0519	0608	S15	W70	.943	15694	8.0	52	1B		C	0519	110		K	
PEKG	13	0517	0519	0555	S17	W70	.944	15694	8.0	38	1N		P		252		E	
YUNN	13	0520	0525	0610	S17	W66	.920	15694	8.3	50	1N		C		188			
MANI	13	0521E	0521U	0534D	S17	W73	.959	15694	7.7	13D	-B	3	C		60			
562 MANI	13	0523E	0525	0536	S16	W55	.832		9.1	13D	-N	*	C		30		F	Y5
563 CULG	13	0600	0607	0615	N21	W88	1.000	15691	6.7	15	-F		C	0607	20			Y5
GRP70564	13	0617+1	0618+7	0722	S17	W69	.938	15694	8.1	65	1B						IJ	
TEHR	13	0513	0623U	0731	S16	W73	.959	15694	7.7	138	1B	*	C		159		F	
ABST	13	0601D	0618	0647	S17	W69	.938	15694	8.1	46D	-N	*	C	0618	87		D	
CULG	13	0617	0624	0722	S15	W71	.948	15694	7.9	65	1B	*	C	0624	160		F	
PEKG	13	0617	0620	0715	S17	W69	.938	15694	8.1	58	2B	*	P		463		E	
YUNN	13	0618	0625	0730	S17	W66	.920	15694	8.3	72	2N	*	C		314			
ABST	13	0618	0623	0639	S18	W66	.921	15694	8.3	21	1N	*	C	0623	175		EIJ	
565 MANI	13	0645	0646	0655	S17	W54	.825		9.2	10	-N	*	C		40			Y5
GRP70566	13	0728	0737 0831+1	0844	S16	W68	.932	15694	8.2	76	1N						F	
CULG	13	0728	0737	0805	S16	W70	.943	15694	8.1	37	1N	*	C	0737	120		F	
MANI	13	0754E	0755	0804D	S16	W57	.850	15694	9.1	10D	-B	*	C		60			
YUNN	13	0756	0832	0945	S17	W67	.926	15694	8.3	109	1N	*	C		157			
KANZ	13	0828	0831	0844	S16	W72	.954	15694	8.0	16	-B	*						
567 KANZ	13	0847	0858	0909	N22	W20	.498	15700	11.9	22	-F	1						Y5
GRP70568	13	0856+2	0904+5	0922	S16	W07	.290	15697	12.8	26	-F							
YUNN	13	0856	0909	0925	S16	W04	.273	15697	13.1	29	-N		C					
MONT	13	0856	0904	0912D	S16	W07	.290	15697	12.8	16D	-F		C	0904	50			
KANZ	13	0858	0906	0918	S15	W07	.275	15697	12.8	20	-F	2						
569 KANZ	13 IMP.1	1014 NO	1024 1 CATA	1032D	S16	W70	.943	15694	8.2	18D	?N	1						Y5
570 RAMY	13	1202	1213	1225	S19	W84	.995	15694	7.2	23	-B	3	C		25			Y5
571 RAMY	13	1215	1215	1219	S17	E04	.290	15697	13.8	4	-N	3	C		22		F	Y5
572 RAMY	13	1234	1234	1241	S15	W08	.282	15697	12.9	7	-B	3	C		33		F	Y5
573 RAMY	13	1408	1408	1410	S19	W85	.996	15694	7.2	2	-B	3	C		13			Y5
GRP70574	13	1432	1432	1458	S19	W20	.452	15696	12.1	26	-B				90	1.0	E	
RAMY	13	1432	1432	1502	S19	W21	.463	15696	12.0	30	-B	3	C		87		DE	
HUAN	13	1435E		1454	S20	W20	.462	15696	12.1	19D	-N	1	C	1437	90	1.0	E	
575 RAMY	13	1442	1450	1451	S19	W85	.996	15694	7.2	9	-B	3	C		7		F	Y5
576 HUAN	13	1527		1532	S14	W15	.342	15697	12.5	5	-F	1	C					Y5
GRP70577	13	1622+1	1623+4	1634	S15	W12	.319	15697	12.8	12	-N							
BIGB	13	1610	1627	1650	S16	W12	.332	15697	12.8	40	-N		C	1627	130			
RAMY	13	1622	1623	1632	S15	W10	.300	15697	12.9	10	-B	3	C		40			
HUAN	13	1623		1634	S15	W13	.330	15697	12.7	11	-F	1	C					
578 RAMY	13	1627	1631	1653	S19	W86	.998	15694	7.2	26	-B	3	C		26			Y5
GRP70579	13	1655+2	1704 1719	1741	S15	W10	.300	15697	13.0	46	-N							
BIGB	13	1655	1719	1740	S16	W10	.313	15697	13.0	45	-N		C	1719	170			
RAMY	13	1657	1704	1741	S15	W11	.309	15697	12.9	44	-B	3	C		69			
580 BIGB	13	1707	1708	1722	N21	W13	.424	15700	12.7	15	-N		C	1708	100			Y5
GRP70581	13	1717+0	1718+2	1734	S18	W83	.993	15694	7.5	17	-B							
RAMY	13	1717	1718	1733	S19	W86	.998	15694	7.3	16	-B	3	C		12			
BIGB	13	1717	1720	1734	S17	W80	.986	15694	7.7	17	1N		C	1720	60			
582 RAMY	13	1736	1741	1744	S19	W86	.998	15694	7.3	8	-B	3	C					Y5
583 RAMY	13	1746	1750	1759	S17	E01	.282	15697	13.8	13	-N	3	C		53			Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.	
GRP70584	13	1747+9	1800+0	1814	S15	W11	.309	15697	12.9	27	-N				80	.8	
BIGB	13	1747	1800	1822	S16	W12	.332	15697	12.8	35	-N		C	1800	100		
RAMY	13	1756	1800	1805	S15	W11	.309	15697	12.9	9	-B	3	C		74		
GRP70585	13	1802+1	1826+4	1856	S18	W83	.993	15694	7.5	54	-N						
RAMY	13	1802	1826	1906	S19	W87	.999	15694	7.2	64	-B	3	C				
BIGB	13	1803	1830	1845	S17	W80	.986	15694	7.8	42	-N		C	1830	35		
GRP70586	13	1820	1902 1937	1950	N23	E11	.437	15702	14.6	90	-N						
BIGB	13	1820	1902	1950	N23	E12	.444	15702	14.7	90	-N		C	1902	30		
BIGB	13	1918	1937	1950	N23	E11	.437	15702	14.6	32	-N	*	C	1937	40		
GRP70587	13	1834+4	1837+1	1849	S16	W12	.332	15697	12.9	15	-N						
BIGB	13	1834	1838	1851	S16	W13	.342	15697	12.8	17	-N		C	1838	100		
BIGB	13	1835	1837	1847	S17	W13	.355	15697	12.8	12	-N		C	1837	100		
RAMY	13	1838	1838	1846	S15	W11	.309	15697	13.0	8	-B	3	C		41		
GRP70588	13	1906E	1925+2	1942	S17	W81	.988	15694	7.7	36	-B						
BIGB	13	1846	1927	1948	S16	W76	.972	15694	8.1	62	1N	*	C	1927	60		
RAMY	13	1906	1925	1935	S19	W87	.999	15694	7.3	29	-B	*	C				
589 BIGB	13	1918	2002	2018	S17	W13	.355	15697	12.8	60	-N		C	2002	110		Y5
590 RAMY	13	1952	1952	2006	S19	W88	.999	15694	7.2	14	-B	3	C				Y5
GRP70591	13	2007+2	2011+3	2035	S17	W80	.986	15694	7.8	28	1N						
BIGB	13	2007	2011	2037	S17	W80	.986	15694	7.8	30	1N		C	2011	65		
RAMY	13	2008	2011	2035	S19	W88	.999	15694	7.2	27	-B	3	C				FDE
CULG	13	2009	2014	2029	S13	W78	.979	15694	8.0	20	1N		C	2029	50		
GRP70592	13	2024>9	2043+3	2057	S17	W13	.355	15697	12.9	33	-N				160	1.7	
BIGB	13	2024	2046	2107	S17	W13	.355	15697	12.9	43	-N	*	C	2046	130		
CULG	13	2031	2043	2056	S17	W14	.365	15697	12.8	25	-N	*	C	2043	130	1.4	
RAMY	13	2034	2046	2057D	S15	W13	.330	15697	12.9	23D	1B	*	C		222		FDE
593 BIGB	13	2027	2028	2040	N22	W28	.580	15700	11.8	13	-N		C	2028	25		Y5
594 RAMY	13	2037	2045	2057D	S17	W01	.282	15697	13.8	20D	-B	*	C		94		Y5
595 BIGB	13	2044	2047	2052	N26	W26	.596	15700	11.9	8	-N		C	2047	25		Y5
596 BIGB	13	2100	2227	2240	S16	W80	.985	15694	7.9	100	-N		C	2227	50		Y5
GRP70597	13	2120	2152 2257	2257D	S29	W21	.570		12.3	97	-N						
BIGB	13	2120	2152	2152D	S29	W19	.554		12.5	32D	-N		C	2152	30		
BIGB	13	2147	2257	2257D	S29	W24	.594		12.1	70D	-N		C	2257	40		
598 BIGB	13	2121	2123	2133	S16	W14	.353	15697	12.8	12	-N		C	2123	60		Y5
GRP70599	13	2138+2	2142+0	2152	N24	W27	.587	15700	11.9	14	-F				60	.7	F
CULG	13	2138	2142	2150	N25	W26	.587	15700	12.0	12	-F		C	2142	50	.7	F
BIGB	13	2140	2142	2153	N24	W28	.597	15700	11.8	13	-N		C	2142	65		
600 BIGB	13	2159	2220	2220D	S24	W27	.575	15696	11.9	21D	-N		C	2220	50		Y5
601 BIGB	13	2223	2310	2320	N23	W21	.519	15700	12.4	57	-N		C	2310	20		Y5
602 BIGB	13	2228	2253	2313	S16	W15	.364	15697	12.8	45	-N		C	2253	40		Y5
GRP70603	13	2319+4	2328+6	2340	S15	W80	.985	15694	8.0	21	1N				110		
CULG	13	2319	2328	2342	S14	W80	.985	15694	8.0	23	1N		C	2328	120		
BIGB	13	2323	2337	2334	S17	W80	.986	15694	8.0	11	1N		C	2337	100		
GRP70604	13	2323+2	2331+2 2342	0014	S14	W10	.286	15697	13.2	51	-N				50	.5	
BIGB	13	2323	2331	2340	S19	W04	.322	15697	13.7	17	-N		C	2331	65		
CULG	13	2325	2333	0024	S14	W12	.307	15697	13.1	59	-N		C	2333	40	.4	
BIGB	13	2325	2342	0003	S10	W14	.289	15697	12.9	38	-N		C	2342	30		
605 BIGB	13	2327	2333	2357	N20	W17	.446	15700	12.7	30	-N		C	2333	130		Y5
GRP70606	13	2343>9	2357+4 2408	0025	S17	W80	.986	15694	8.0	42	1N				120		K
PEKG	14	0005	0008	0025	S21	W78	.980	15694	8.2	20	1B		P		105		D
BIGB	13	2343	2357	0012	S17	W80	.986	15694	8.0	29	1N		P	2357	130		
CULG	13	2353	2401	0048	S16	W80	.985	15694	8.0	55	1N		C	2401	120		FK

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP70607	14	0010+0	0013+1	0028	N24	W29	.608	15700	11.8	18	1B				180	2.3	E	
CULG	14	0010	0014	0030	N25	W28	.607	15700	11.9	20	-B		C	0014	120	1.6		
PEKG	14	0010	0013	0025	N23	W31	.621	15700	11.7	15	1B		P		252	159.0	E	
GRP70608	14	0115+0	0121+0	0134	S15	W16	.363	15697	12.9	19	-N							
CULG	14	0115	0121	0137	S15	W18	.387	15697	12.7	22	-F		C	0121	110	1.2		
YUNN	14	0115	0121	0130	S16	W14	.351	15697	13.0	15	1N		C					
609 VORO	14	0207	0207	0210	S18	W05	.308	15697	13.7	3	-N		C	0207	63	.6	D	Y5
610 VORO	14	0221	0222	0223	N23	W24	.549	15700	12.3	2	-N		C	0222	45	.5	D	Y5
611 VORO	14	0222	0230	0238	S18	W90	1.000	15694	7.3	16	-N		C	0230	99		EHJ	Y5
612 VORO	14	0246	0247	0250	S17	W16	.385	15697	12.9	4	-F		C	0247	45	.5	E	Y5
GRP70613	14	0350+5	0352+4	0410	S17	W82	.991	15694	8.0	20	-N				60			
VORO	14	0350	0352	0405D	S18	W90	1.000	15694	7.4	15D	-N		C	0352	99			
YUNN	14	0351	0355	0410	S17	W78	.979	15694	8.3	19	1N		C					
PEKG	14	0354	0356	0410	S20	W85	.996	15694	7.8	16	-N		P		42		D	
TEHR	14	0355	0355U	0408D	S15	W80	.985	15694	8.2	13D	-B	1	C		64		FDE	
GRP70614	14	0428+4	0433+2	0448	S14	W18	.378	15697	12.8	20	1B							
CULG	14	0428	0433	0514	S12	W21	.402	15697	12.6	46	1B		C	0433	180	2.0		
PEKG	14	0432	0435	0448	S13	W21	.409	15697	12.6	16	1B		P		414	185.0	E	
YUNN	14	0432	0435	0447	S16	W16	.374	15697	13.0	15	1N		C					
TEHR	14	0438E	0438U	0442D	S15	W14	.340	15697	13.1	4D	-B	1	C		159		FDE	
GRP70615	14	0717+5	0723+2	0731	S17	W82	.991	15694	8.2	14	1B						K	
CULG	14	0654	0730	0820D	S15	W85	.996	15694	7.9	86D	1B		C	0730	70		K	
PEKG	14	0717	0723	0729	S18	W85	.996	15694	7.9	12	1B		P		168		E	
PURP	14	0718	0724	0728	S21	W80	.986	15694	8.3	10	1B		C					
TEHR	14	0722	0724U	0735D	S15	W80	.985	15694	8.3	13D	-B	1	C		64		FDE	
YUNN	14	0722	0725	0730	S17	W80	.985	15694	8.3	8	1N		C					
616 ISTA	14	0736		0745	S25	W76	.974	15694	8.6	9	-F						D	Y5
GRP70617	14	0900+3	0903	0909	S13	W16	.343	15697	13.2	9	-N							
TEHR	14	0900	0903	0908	S15	W14	.340	15697	13.3	8	-B	2	C		95		FDE	
ISTA	14	0903		0910	S11	W19	.366	15697	13.0	7	-F						D	
	14	1005	1015	NO FLARE PATROL														
	14	1031	1055	NO FLARE PATROL														
	14	1100	1115	NO FLARE PATROL														
	14	0408	0415	NO FLARE PATROL														
	14	0433	0438	NO FLARE PATROL														
	14	0442	0447	NO FLARE PATROL														
	14	0500	0508	NO FLARE PATROL														
	14	0545	0555	NO FLARE PATROL														
	14	0602	0606	NO FLARE PATROL														
618 RAMY	14	1258	1300	1310	S24	E40	.709	15707	17.5	12	-N	3	C		25			Y5
619 HTPR	14	1339	1343	1350	S19	W17	.418	15697	13.3	11	-F		C	1343	30	.3	E	Y5
620 HTPR	14	1412	1415	1422	S17	W20	.431	15697	13.1	10	-F		C	1415	10	.1		Y5
GRP70621	14	1419	1433+1	1448	S17	W33	.592	15696	12.1	29	-F						E	
HTPR	14	1419	1433	1445	S18	W34	.610	15696	12.0	26	-F		C	1433	20	.2		
MCMA	14	1428E	1434	1451D	S17	W33	.592	15696	12.1	23D	-N		C	1434	60	.8	E	
GRP70622	14	1622+1	1625+0	1631	S18	W90	1.000	15694	7.9	9	-N							
BIGB	14	1622	1625	1631	S18	W90	1.000	15694	7.9	9	-N		C	1625	35			
RAMY	14	1623	1625	1630	S19	W90	1.000	15694	7.9	7	-B	3	C					
623 MCMA	14	1649E		1653D	S16	W23	.459	15697	13.0	4D	-N		P	1650	60	.7	E	Y5
GRP70624	14	1837+2	1840+1	1846	N22	W29	.592	15700	12.6	9	-N				30	.4	F	
BIGB	14	1837	1841	1846	N12	W28	.509	15700	12.7	9	-N		C	1841	20			
HOLL	14	1838	1840	1846	N23	W31	.621	15700	12.5	8	-N	3	C		41		F	
RAMY	14	1839	1840	1843	N21	W29	.584	15700	12.6	4	-N	3	C		31		F	
625 RAMY	14	1900E	1918	1945	S15	W25	.477	15697	12.9	45D	-N	3	C		26		F	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Dist	CORR AREA Sq. Deg.	
GRP70626	14	2024+1	2033+7 2110	2145	S15	W25	.477	15697	13.0	81	-N				110	1.3	FZ
BIGB	14	2018	2040	2149	S16	W28	.523	15697	12.7	91	-N		C	2040	60		
RAMY	14	2024	2034	2119D	S15	W26	.490	15697	12.9	55D	-B	3	C		142		F
CULG	14	2024	2038	2134	S15	W26	.490	15697	12.9	70	-N		C	2038	100	1.2	F
HOLL	14	2025	2033	2142	S15	W25	.477	15697	13.0	77	-B	3	C		126		Z F
BIGB	14	2025	214E	2110U	S26	W23	.553	15697	13.1	45D	-N		C	214E	25		
CULG	14	2120	2122	2145	S15	W18	.387	15697	13.5	25	-F		C	2122	30	.3	
627 BIGB	14	2149	2150	2151	S17	W28	.530	15697	12.8	2	-N		C	2150	50		Y5
628 BIGB	14	2207	2219	2235	S25	W21	.524		13.3	28	-N		C	2219	60		Y5
GRP70629	14	2213+0	2214+1	2221	N21	W33	.628	15700	12.5	8	-N				30	.4	F
HOLL	14	2123	2214	2216D	N23	W33	.642	15700	12.4	53D	-B	*	V		76		
BIGB	14	2213	2214	2222	N21	W33	.628	15700	12.5	9	-N	*	C	2214	25		
HOLL	14	2213	2214	2216D	N23	W33	.642	15700	12.5	3D	-B	*	C		76		
PALE	14	2214E	2215	2219	N21	W32	.617	15700	12.5	5D	-N	*	C		20		F
GRP70630	14	2233	2247	2256	S17	W28	.530	15697	12.8	23	-N						
BIGB	14	2233	2247	2254	S17	W28	.530	15697	12.8	21	-N		C	2247	50		
BIGB	14	2244	2247	2256	S17	W28	.530	15697	12.8	12	-N		C	2247	60		
631 BIGB	14	2237	2240	2243	S27	W21	.546		13.4	6	-N		C	2240	20		Y5
632 BIGB	14	2310	2311	2312	S22	W90	1.000	15694	8.2	2	-N		C	2311	25		Y5
GRP70633	14	2342+J	2343+0	2351	S20	W42	.711	15696	11.8	9	-N						
BIGB	14	2342	2343	2345	S22	W41	.710	15696	11.9	3	-N		C	2343	35		
VORO	14	2342	2343	2351	S20	W42	.711	15696	11.8	9	-N		C	2343	125	1.8	E
PALE	14	2343E	2343U	0005	S19	W43	.718	15696	11.8	22D	-B	3	C		74		FDE
634 VORO	14	2349	2351	2354	S17	W28	.530	15697	12.9	5	-F		C	2351	45	.5	D Y5
635 VORO	14	2355	2356	0000	S20	W41	.701	15696	11.9	5	-N		C	2356	36	.5	D Y5
GRP70636	15	0059+6	0108+1	0124	S11	W33	.564	15697	12.6	25	-F				140	1.7	E
CULG	15	0059	0109	0130	S11	W34	.577	15697	12.5	31	-F		C	0109	100	1.2	
VORO	15	0105	0108	0117	S12	W32	.554	15697	12.6	12	1F		C	0108	188	2.3	E
637 PEKG	15	0149	0150	0155	N15	W37	.641	15700	12.3	6	-F		P		42	27.0	D Y5
638 PEKG	15	0206	0207	0215	N21	W35	.651	15700	12.5	9	-F		P		42	27.0	D Y5
639 VORO	15	0216	0219	0225	S23	W90	1.000	15694	8.3	9	-N		C	0219	90		J Y5
GRP70640	15	0217+3	0221+2	0232	S12	W34	.581	15697	12.5	15	1N				210	2.6	E
CULG	15	0217E	0223	0242	S11	W33	.564	15697	12.6	25D	-N		C	0223	80	1.0	
VORO	15	0217	0222	0228	S12	W34	.581	15697	12.5	11	1F		C	0222	323	3.9	E
PEKG	15	0220	0221	0230	S12	W35	.594	15697	12.5	10	1N		P		210	130.0	E
PURP	15	0220	0221	0233	S14	W39	.653	15697	12.2	13	-N		C				
641 VORO	15	0236	0237	0240	S17	W30	.554	15697	12.9	4	-F		C	0237	36	.4	D Y5
642 CULG	15	0314	0324	0400	S15	W32	.568	15697	12.7	46	-N		C	0324	40	.5	Y5
GRP70643	15	0400	0401+4	0412	N22	W34	.647	15700	12.6	12	-N				90	1.2	
PEKG	15	0400	0405	0410	N22	W34	.647	15700	12.6	10	-N		P		126	83.0	
CULG	15	0401E	0401E	0414D	N23	W33	.643	15700	12.7	13D	-N		P	0401	60	.8	F
MITK	15	0402E	0405	0412	N22	W34	.647	15700	12.6	10D	-F		C	0405			E
644 CULG	15	0435	0445	0510	S14	W30	.536	15697	12.9	35	-F		C	0445	40	.5	Y5
645 TEHR	15	0645	0647	0655	N22	W36	.668	15700	12.6	10	-N	1	C		64		FDE Y5
GRP70646	15	0852+5	0858+2	0908	N22	W38	.689	15700	12.5	16	-N						
MONT	15	0852	0858	0908	N22	W41	.720	15700	12.3	16	-F		C	0858	50		E
TEHR	15	0857	0900	0907	N22	W36	.668	15700	12.7	10	-B	1	C		127		FDE
647 RAMY	15	1205	1206	1210	N21	W38	.683	15700	12.7	5	-N	3	C		40		Y5
648 RAMY	15	1238	1238	1245	N21	W39	.694	15700	12.6	7	-N	3	C		28		Y5
GRP70649	15	1303	1342	1517	N21	W43	.736	15700	12.3	134	-N						E
RAMY	15	1303	1342	1517	N21	W40	.705	15700	12.5	134	-B	3	C		106		
HCMA	15	1341E		1351D	N21	W43	.736	15700	12.3	10D	-N		P	1349	50	.8	E
KANZ	15	1342E		1353D	N23	W43	.745	15700	12.3	11D	-F	1					

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS AREA Mill of Disk	CORR AREA Sq Deg.	
650 RAMY	15	1443	1443	1454	S22	E44	.740	15709	18.9	11	-F	3	C		26		Y5
GRP70651	15	1452+3	1457+5 1542	1610	S14	W29	.523	15697	13.4	78	-N						E
MCMA	15	1452	1502	1610D	S14	W28	.510	15697	13.5	78D	-N		C	1502	150	1.8	E
RAMY	15	1455	1457	1609	S15	W36	.619	15697	12.9	74	-B	3	C		31		
RAMY	15	1457	1542	1637	S11	W31	.536	15697	13.3	100	-N	3	C		65		
HTPR	15	1506E		1532	S14	W29	.523	15697	13.5	26D	-N		C	1510	40	.4	E
652 RAMY	15	1526	1533	1619	N21	W40	.705	15700	12.6	53	-B	3	C		34		Y5
653 RAMY	15	1529	1531	1539	S22	E44	.740	15709	18.9	10	-F	3	C		38		Y5
654 RAMY	15	1654	1656	1700	S15	W37	.632	15697	12.9	6	-B	3	C		20		Y5
655 RAMY	15	1657	1659	1704	N21	W41	.715	15700	12.6	7	-N	3	C		20		Y5
656 BIGB	15	1706	1720	1723	N19	W16	.428		14.5	17	-N		C	1720	30		Y5
657 BIGB	15	1807	1809	1813	S23	E30	.596	15707	18.0	6	-N		C	1809	20		Y5
GRP70658	15	1820+3	1826	1902	S13	W36	.611	15697	13.1	42	-N				80	1.0	
MCMA	15	1820	1826	1902D	S13	W36	.611	15697	13.1	42D	-N		C	1826	60	.8	E
HUAN	15	1823		1843	S13	W36	.611	15697	13.1	20	-F	1	C				
RAMY	15	1830E	1830U	1933D	S11	W32	.550	15697	13.4	63D	-B	2	C		96		F
659 BIGB	15	1840	1846	1855	N19	W16	.428		14.6	15	-N		C	1846	20		Y5
660 RAMY	15	1848	1849	1854	S22	E42	.719	15709	18.9	6	-F	2	C		35		Y5
GRP70661	15	1937E	1951 1957	2046	S12	W42	.683	15697	12.7	69	-N						
MCMA	15	1937E		1958D	S16	W42	.696	15697	12.7	21D	-F		C	1941	80	1.1	E
RAMY	15	1948E	1957	2001D	S12	W42	.683	15697	12.7	13D	-B	2	C		110		F
RAMY	15	1948E	1951	2001D	S12	W42	.683	15697	12.7	13D	-N	2	C		73		F
CULG	15	2001E	2005	2046	S10	W44	.703	15697	12.5	45D	1N		C	2005	200	2.8	
662 CULG	15	2055	2115	2136	S14	W42	.689	15697	12.7	41	-N		C	2115	40	.6	Y5
663 CULG	15	2105	2110	2125	S24	E40	.708	15709	18.9	20	-F		C	2110	60	.8	Y5
664 CULG	15	2105	2110	2118	N23	W59	.884	15699	11.5	13	-F		C	2110	20	.4	Y5
GRP70665	15	2239	2248	2355	S14	W39	.653	15697	13.0	76	-B						
CULG	15	2239	2248	2355	S13	W40	.662	15697	12.9	76	-B		C	2248	120	1.7	
HOLL	15	2259E	2259U	2312D	S15	W39	.656	15697	13.0	13D	-B	1	C		115		DE
GRP70666	16	0116+2	0119+0	0124	S16	W43	.706	15697	12.8	8	-F						D
CULG	16	0116	0119	0125	S15	W43	.703	15697	12.8	9	-N		C	0119	140	1.9	
MITK	16	0118	0119	0122	S17	W44	.721	15697	12.8	4	-F		C	0119			D
GRP70667	16	0350+4	0355+6	0421	S14	W35	.601	15697	13.5	31	1N				340	4.3	IU
CULG	16	0350	0401	0618	S13	W35	.597	15697	13.5	148	1N		C	0401	410	5.1	FIU
MITK	16	0352	0355	0432	S14	W35	.601	15697	13.5	40	-N		C	0355			E
PURP	16	0353	0356	0358D	S14	W34	.588	15697	13.6	5D	2B		C		340	208.0	
PEKG	16	0353	0400	0410	S14	W34	.588	15697	13.6	17	1N		P		168	103.0	
YUNN	16	0354	0357	0404	S16	W41	.683	15697	13.1	10	1N		C				
668 PEKG	16	0544	0546	0548	S22	E39	.687	15709	19.2	4	-F		P		105	66.0	D Y5
GRP70669	16	0617	0619+1	0631	N23	W53	.837	15700	12.3	14	-N						
CULG	16	0617	0620	0637	N25	W55	.859	15700	12.1	20	-N		C	0620	60	1.1	
PURP	16	0619E	0619	0625	N21	W52	.823	15700	12.4	6D	-N		C				
670 PURP	16	0625E	0625	0630	S16	W38	.647	15697	13.4	5D	-F		C				Y5
671 PURP	16	0714	0715	0724	S22	E37	.665	15709	19.1	10	?N		C				Y5
	IMP.1 NO ! CULG			CATA													
672 HTPR	16	0941	0949	1005	S14	W48	.757	15697	12.8	24	-F		C	0949	120	1.8	E Y5
GRP70673	16	1651+0	1652+1	1657	N22	W57	.867	15700	12.4	6	-N				60	1.2	
RAMY	16	1651	1653	1658	N22	W57	.867	15700	12.4	7	-B	3	C		76		F
MCMA	16	1651	1652	1656	N22	W58	.875	15700	12.4	5	-N		C	1652	40	1.0	E
674 RAMY	16	1707	1708	1710	N19	W05	.352	15704	16.3	3	-F	3	C		26		Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
675 RAMY	16	1715	1720	1735	N19	W05	.352	15704	16.3	20	-N	3	C		60			Y5
676 RAMY	16	1740	1743	1749	N19	W05	.352	15704	16.4	9	-F	3	C		29		F	Y5
677 RAMY	16	1806	1806	1816	S18	W38	.656	15697	13.9	10	-N	3	C		20		F	Y5
678 RAMY	16	1808	1810	1819	S22	E29	.576	15709	18.9	11	-B	3	C		72		F	Y5
679 MCMA	16	1815E		1857	N19	W06	.356	15704	16.3	42D	-N		C	1835	80	.9	E	Y5
GRP70680	16	1900+1	1905	1917	N19	W06	.356	15704	16.3	17	-N				50	.5		
MCMA	16	1900		1907D	N19	W06	.356	15704	16.3	7D	-N		P	1902	50	.5	E	
RAMY	16	1901	1905	1917	N19	W06	.356	15704	16.3	16	-B	3	C		55		F	
681 RAMY	16	1957	1958	2003	N22	W58	.875	15700	12.5	6	-N	2	C		39			Y5
	16	2029	2036	NO FLARE PATROL														
682 RAMY	16	2036	2040	2050	S15	W51	.791	15697	13.0	14	-N	2	C		31			Y5
	16	2102	2343	NO FLARE PATROL														
	16	0642	0650	NO FLARE PATROL														
683 VORO	17	0020	0021	0032	S16	W48	.761	15697	13.4	12	?F		C	0021	188	2.9	E	Y5
	IMP.1 NO : MITK																	
684 VORO	17	0036	0037	0042	S22	E24	.520	15709	18.8	6	-F		C	0037	116	1.3	D	Y5
685 VORO	17	0119	0120	0123	S23	E30	.594	15709	19.3	4	-F		C	0120	81	1.0	D	Y5
GRP70686	17	0202+3	0207+3	0228	S20	W73	.960	15696	11.6	26	1N						E	
VORO	17	0202	0207	0238	S20	W71	.950	15696	11.8	36	-N		C	0216	161		E	
PURP	17	0204	0209	0227	S21	W76	.972	15696	11.4	23	1N		C					
YUNN	17	0205	0210	0228	S20	W73	.960	15696	11.6	23	1N		C					
GRP70687	17	0248	0251+3	0304	N24	E36	.683	15710	19.8	16	-N						E	
VORO	17	0248	0251	0303	N24	E34	.662	15710	19.7	15	-N		C	0251	81	1.1	E	
PURP	17	0251E	0254	0304	N24	E39	.712	15710	20.0	13D	-N		C					
GRP70688	17	0256+1	0258+1	0304	S22	E24	.520	15709	18.9	8	-N						E	
VORO	17	0256	0258	0307	S21	E24	.511	15709	18.9	11	-F		C	0258	134	1.5	E	
YUNN	17	0257	0259	0303	S22	E24	.520	15709	18.9	6	-N		C					
PURP	17	0257	0258	0304	S23	E27	.561	15709	19.1	7	-N		C					
689 PEKG	17	0320	0324	0328	N19	W12	.396	15704	16.2	8	-F		P		168	91.0	E	Y5
GRP70690	17	0343+2	0349+9	0406	N20	W10	.396	15704	16.4	23	-N						E	
VORO	17	0343	0349	0402	N21	W09	.404	15704	16.5	19	-N		C	0349	152	1.7	E	
YUNN	17	0345	0349	0405	N19	W12	.396	15704	16.3	20	-N		C					
MANI	17	0350E	0350U	0402D	N18	W10	.367	15704	16.4	12D	-N	3	C		20			
PURP	17	0353E	0354	0415	N19	W10	.381	15704	16.4	22D	-N		C					
PEKG	17	0354	0358	0406	N21	W11	.417	15704	16.3	12	-B		P		168	92.0	E	
691 MANI	17	0559E	0559U	0604D	S25	E06	.416	15707	17.7	5D	-N	3	C		15			Y5
692 ABST	17	0720	0722	0730	N17	W28	.545	15717	15.2	10	-F		C	0722	87	1.0	D	Y5
GRP70693	17	0729+4	0741+3	0805	S15	W51	.790	15697	13.5	36	2N				340	5.6	IUZ	
ABST	17	0729	0744D	0808	S14	W50	.778	15697	13.6	39	2N		P	0744	348	5.9	EZ	
CULG	17	0732	0742	0757D	S14	W51	.788	15697	13.5	25D	2B		P	0742	430	6.9	FU	
YUNN	17	0733	0742	0810	S16	W56	.840	15697	13.1	37	2N		C					
TEHR	17	0733	0743	0806	S15	W51	.790	15697	13.5	33	1B	1	C		286		F	
MANI	17	0734E	0741	0754	S17	W48	.764	15697	13.7	20D	1B	3	C		250		FDE	
HTPR	17	0737E		0810D	S15	W51	.790	15697	13.5	33D	2N		C	0738	400	6.2	EI	
694 HTPR	17	0828	0830	0845	S17	W42	.698	15697	14.2	17	-F		C	0830	10	.1		Y5
695 ABST	17	0831	0834	0845E	N18	W14	.400	15704	16.3	14D	-N		P	0834	174	1.8	EJ	Y5
696 HTPR	17	0850	0853	0928	S22	E30	.586	15709	19.6	38	-F		C	0853	40	.5		Y5
697 HTPR	17	1050	1051	1055	N17	W34	.617	15717	14.9	5	-F		C	1051	30	.4		Y5
698 HTPR	17	1101	1103	1111	N17	W34	.617	15717	14.9	10	-F		C	1103	30	.4	E	Y5
699 RAMY	17	1217	1218	1241	N18	W16	.419	15704	16.3	24	-B	3	C		24			Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
GRP70700	17	1357	1358 1427	1524	N18	W16	.419	15704	16.4	87	-B						F
RAMY	17	1357	1358	1524	N18	W16	.419	15704	16.4	87	-N	3	C		52		F
RAMY	17	1357	1427	1524	N18	W16	.419	15704	16.4	87	-B	3	C		151		F
GRP70701	17	1432+1	1434 1500	1528	S24	E24	.539	15709	19.4	56	-N						FK
HTPR	17	1432		1515D	S24	E25	.549	15709	19.5	43D	-F		C	1439	30	.3	FK
MCMA	17	1432	1500	1535	S23	E22	.508	15709	19.3	63	-N		C	1500	75	.9	E
RAMY	17	1433	1434	1521	S25	E24	.548	15709	19.4	48	-B	3	C		86		F
702 MCMA	17	1507	1512	1522	S17	W62	.891	15697	13.0	15	-F		C	1512	30	.8	D Y5
703 RAMY	17	1526	1532	1537	N18	W17	.429	15704	16.4	11	-N	3	C		21		Y5
GRP70704	17	1545+4	1552+0	1601	S17	W49	.774	15697	14.0	16	-B				70	1.1	
MCMA	17	1545	1552	1604	S17	W49	.774	15697	14.0	19	-B		C	1552	100	1.6	E
RAMY	17	1549	1552	1558	S18	W49	.777	15697	14.0	9	-B	3	C		50		F
GRP70705	17	1549+1	1550+0	1556	N22	W68	.940	15700	12.6	7	-B				25		D
MCMA	17	1549	1550	1557	N24	W70	.953	15700	12.4	8	-B		C	1550	25	1.0	D
RAMY	17	1550	1550	1554	N20	W66	.927	15700	12.7	4	-B	3	C		20		
706 RAMY	17	1553	1557	1634	N18	W18	.440	15704	16.3	41	-B	3	C		68		F Y5
707 MCMA	17	1607	1608	1617	S17	W49	.774	15697	14.0	10	-F		C	1608	50	.8	D Y5
708 MCMA	17	1609	1613	1624	S14	W60	.872	15697	13.2	15	-N		C	1613	40	.9	E Y5
GRP70709	17	1645+1	1650 1656+1	1717	N18	W19	.450	15704	16.3	32	-B						EK
MCMA	17	1645	1656	1702D	N18	W20	.461	15704	16.2	17D	-B		C	1656	100	1.2	EK
RAMY	17	1646	1650	1653	N18	W18	.440	15704	16.3	7	-B	3	C		73		F
RAMY	17	1654	1657	1717	N18	W18	.440	15704	16.4	23	1B	3	C		239		DE
710 RAMY	17	1718	1719	1730	N18	W18	.440	15704	16.4	12	-N	3	C		25		F Y5
711 RAMY	17	1731	1735	1755	N18	W19	.450	15704	16.3	24	-B	3	C		59		F Y5
GRP70712	17	1800+7	1808+3	1833	S15	W62	.889	15697	13.1	33	1B				110	2.4	
MCMA	17	1800E	1811	1833	S14	W60	.872	15697	13.3	33D	1B		C	1811	100	2.4	E
RAMY	17	1807	1808	1850	S16	W62	.890	15697	13.1	43	-B	3	C		120		DE
PALE	17	1821E	1821U	1826	S15	W64	.904	15697	13.0	5D	-B	3	C		110		FDE
GRP70713	17	1800>9	1824+1	1838	N18	W19	.450	15704	16.3	38	-B						
MCMA	17	1800	1824	1833	N18	W20	.461	15704	16.3	33	-N	*	C	1824	80	1.0	E
RAMY	17	1815	1825	1838	N18	W19	.450	15704	16.3	23	-B	*	C		143		
PALE	17	1821E	1825	1849	N19	W19	.461	15704	16.3	28D	1B	*	C		234		FDE
GRP70714	17	1850+5	1907 1915	1935	N18	W19	.450	15704	16.4	45	-N						
PALE	17	1850E	1915U	1934	N19	W20	.472	15704	16.3	44D	-N	3	C		68		FDE
RAMY	17	1855	1907	1936	N18	W19	.450	15704	16.4	41	-B	3	C		75		
715 RAMY	17	1912	1920	1934	S16	W63	.897	15697	13.1	22	-B	3	C		14		F Y5
716 PALE	17	1935	1936	1939	N19	W20	.472	15704	16.3	4	-N	3	C		47		Y5
GRP70717	17	1957+3	1957 2024	2047	N18	W22	.483	15704	16.2	50	-N						
HUAN	17	1957	1957	2002	N17	W24	.497	15704	16.0	5	-N	2	C	1957	35	.4	
PALE	17	2000	2024	2057	N19	W20	.472	15704	16.3	57	-B	3	C		134		FDE
HUAN	17	2031		2037	N17	W25	.509	15704	16.0	6	-F	1	C				
718 PALE	17	2011E	2013	2017D	S15	W65	.911	15697	13.0	6D	-N	3	C		42		FDE Y5
GRP70719	17	2057+3	2102 2113	2128	S16	W65	.911	15697	13.0	31	-N						
CULG	17	2057	2113	2128	S15	W65	.911	15697	13.0	31	1N		C	2113	80	2.0	
PALE	17	2058	2102	2128	S16	W65	.911	15697	13.0	30	-B	3	C		97		FDE
HUAN	17	2100		2107D	S16	W68	.931	15697	12.8	7D	-F	1	P				
720 PALE	17	2111	2114	2133	N19	W21	.482	15704	16.3	22	-N	3	C		93		DE Y5
GRP70721	17	2128+1	2129+0	2135	S22	E20	.478	15709	19.4	7	-F				40	.5	
CULG	17	2128	2129	2136	S22	E21	.488	15709	19.5	8	-F		C	2129	50	.6	
PALE	17	2129	2129	2134	S22	E20	.478	15709	19.4	5	-N	3	C		30		DE

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.		
	17	2210	2221	NO FLARE PATROL														
GRP70722	17	2247	2252+0	2305	N18	W21	.472	15704	16.4	18	-F				35	.4		
CULG	17	2247	2252	2259	N18	W20	.461	15704	16.4	12	-F		C	2252	30	.3		
PALE	17	2250E	2252	2310D	N19	W22	.493	15704	16.3	20D	-N	3	C		41		FDE	
723 CULG	18	0033	0036	0041	S15	W65	.910	15697	13.1	8	-F		C	0036	40			Y5
GRP70724	18	0224>9	0240	0250D	S19	E17	.412	15709	19.4	26	-F				150	1.6	EJ	
CULG	18	0224	0240	0329	S20	E17	.423	15709	19.4	65	-F	*	C	0240	170	1.9		
VORO	18	0241		0250	S19	E18	.423	15709	19.5	9	-N	*	C	0242	125	1.4	EJ	
725 CULG	18	0226	0230	0244	N24	W85	.998	15700	11.7	18	-N		C	0230	20			Y5
GRP70726	18	0259+0	0301+5	0309	S17	W67	.925	15697	13.1	10	-N				40		D	
CULG	18	0259	0306	0313	S17	W69	.937	15697	12.9	14	-N		C	0306	30			
VORO	18	0259	0301	0304	S18	W66	.919	15697	13.2	5	-N		C	0301	45		D	
727 CULG	18	0427	0430	0441	S13	W67	.923	15697	13.2	14	-F		C	0430	80			Y5
728 CULG	18	0510	0522	0609	S27	W04	.439	15707	17.9	59	-F		C	0522	30	.3		Y5
729 CULG	18	0521	0524	0532	N23	W21	.526	15704	16.6	11	-F		C	0524	40	.5	T	Y5
730 CULG	18	0543	0552	0612	N22	W85	.997	15700	11.9	29	-F		C	0552	30			Y5
731 TEHR	18	0859E	0900U	0912	S17	W58	.858	15697	14.0	13D	-B	2	C		95			Y5
	18	1305	1346	NO FLARE PATROL														
	18	1409	1416	NO FLARE PATROL														
732 RAMY	18	1416	1418	1444	S16	W74	.963	15697	13.0	28	-B	2	C		33		F	Y5
733 MCMA	18	1545	1548	1552	N16	W76	.974	15700	13.0	7	-N		C	1548			D	Y5
734 MCMA	18	1633	1636	1656	N12	W85	.997	15697	12.3	23	1B		C	1636			AR	Y5
	18	1702	1711	NO FLARE PATROL														
	18	1738	1815	NO FLARE PATROL														
	18	1846	2000	NO FLARE PATROL														
	18	2119	2125	NO FLARE PATROL														
	18	0120	0122	NO FLARE PATROL														
735 CULG	18	2202	2212	2227	S10	W90	1.000	15697	12.2	25	1N		C	2212	80			Y5
736 CULG	18	2227	2242	2313	S24	W90	1.000	15696	12.2	46	1F		C	2242	60			Y5
GRP70737	18	2346+2	2348+2	0004	S12	W90	1.000	15697	12.2	18	1B				140		E	
CULG	18	2346	2348	0005	S10	W90	1.000	15697	12.2	19	1B		C	2348	100			
VORO	18	2347E		2356	S12	W90	1.000	15697	12.2	9D	-N		C	2347	188		E	
MANI	18	2348	2350	0004	S20	W90	1.000	15697	12.2	16	1B	3	C					
738 CULG	18	2351	2401	0028	S27	W15	.492	15707	17.9	37	-F		C	2401	40	.5		Y5
GRP70739	19	0021	0034+3	0046	N11	E41	.677	15712	22.1	25	-N				50	.7	F	
CULG	19	0021	0037	0047	N11	E42	.689	15712	22.2	26	-N		C	0037	70	1.0		
PALE	19	0032E	0034	0044	N12	E41	.680	15712	22.1	12D	-N	3	C		42		F	
GRP70740	19	0117+4	0122	0134	N20	W36	.659	15704	16.4	17	-F						EJ	
			0129															
CULG	19	0117	0129	0140	N20	W35	.648	15704	16.4	23	-F		C	0129	60	.8		
VORO	19	0121	0122	0128	N20	W38	.681	15704	16.2	7	-N		C	0122	72	1.0	EJ	
GRP70741	19	0340+2	0343+1	0406	N22	W37	.682	15704	16.4	26	-F				45	.6	D	
CULG	19	0340	0344	0406	N23	W37	.688	15704	16.4	26	-F		C	0344	40	.6		
VORO	19	0342	0343	0345D	N21	W37	.676	15704	16.4	3D	-N		C	0343	54	.7	D	
742 CULG	19	0354	0400	0407	S12	W85	.996	15697	12.8	13	-N		C	0400	30			Y5
743 CULG	19	0644	0650	0659	N23	E27	.586	15711	21.3	15	-N		C	0650	50	.6		Y5
744 CULG	19	0743	0748	0804	N23	W39	.709	15704	16.4	21	-N		C	0748	70	1.0		Y5
GRP70745	19	0830	0836+1	0845	S17	W76	.971	15697	13.7	15	-B						F	
YUNN	19	0830	0837	0846	S16	W82	.990	15697	13.2	16	1N		C					
TEHR	19	0833E	0836	0844	S18	W70	.943	15697	14.1	11D	-B	2	C		95		F	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq. Deg.	
	19	1420	1424	NO FLARE PATROL													
746 RAMY	19	1839	1839	1852	N18	W45	.747	15704	16.4	13	-N	3	C		20		Y5
747 RAMY	19	1940	1941	1947	S18	W78	.979	15697	14.0	7	-N	3	C				Y5
	19	2113	2125	NO FLARE PATROL													
748 VORO	20	0053	0054	0059	S19	W80	.985	15697	14.0	6	-N		C	0054	45	1.8	DH Y5
749 CULG	20	0527	0532	0547	N08	E20	.376	15712	21.7	20	-N		C	0532	30	.3	Y5
750 ABST	20	0738	0741	0750E	N19	W56	.854	15704	16.1	120	-F		P	0741	87	1.7	DJ Y5
	20	1215	1225	NO FLARE PATROL													
	20	1240	1250	NO FLARE PATROL													
	20	1315	1325	NO FLARE PATROL													
	20	1500	1612	NO FLARE PATROL													
751 RAMY	20	1621	1622	1624	N11	E17	.359	15712	22.0	3	-N	2	C		26		H Y5
	20	1634	1648	NO FLARE PATROL													
	20	1705	1804	NO FLARE PATROL													
	20	1814	1823	NO FLARE PATROL													
752 HOLL	20	2011	2015	2024	N19	W61	.893	15704	16.3	13	-N	2	C		20		Y5
753 CULG	20	2115	2120	2125	N12	E10	.289	15712	21.6	10	-F		C	2120	20	.2	Y5
GRP70754	20	2145>9	2202+1 2215	2226	N11	E15	.333	15712	22.0	41	-N				60	.6	
CULG	20	2145	2203	2235	N11	E09	.265	15712	21.6	50	-N		C	2203	40	.4	
PALE	20	2155E	2203	2218	N11	E15	.333	15712	22.0	23D	-B	2	C		77		FDE
HOLL	20	2155	2202	2226	N12	E15	.344	15712	22.0	31	-N	2	C		52		
CULG	20	2212	2215	2220	N12	E10	.289	15712	21.7	8	-N		C	2215	60	.6	
755 CULG	20	2200	2203	2209	N23	W70	.953	15704	15.7	9	-F		C	2203	20		Y5
756 HOLL	20	2213	2213	2216	N19	W62	.900	15704	16.3	3	-N	2	C		15		F Y5
GRP70757	20	2249+2	2252+1	2258	N21	W66	.929	15704	16.0	9	-N				40		
CULG	20	2249	2252	2259	N23	W70	.953	15704	15.7	10	-N		C	2252	40		
HOLL	20	2251	2253	2257	N19	W62	.900	15704	16.3	6	-N	2	C		38		
758 CULG	20	2316	2318	2328	N12	E09	.279	15712	21.6	12	-N		C	2318	80	.8	Y5
759 CULG	21	0025	0035	0056	N18	W85	.997	15717	14.6	31	-F		C	0035	20	.2	Y5
760 PALE	21	0040	0042	0044	N19	W64	.914	15704	16.2	4	-N	3	C		22		Y5
761 YUNN	21	0052	0057	0125	N21	W63	.911	15704	16.3	33	-N		C				Y5
762 YUNN	21	0147	0153	0235	N21	W64	.917	15704	16.3	48	-N		C				Y5
GRP70763	21	0247	0353 0458	0522	N19	W66	.927	15704	16.2	155	-N						
YUNN	21	0247	0353	0459	N21	W65	.923	15704	16.2	132	-N		C				
CULG	21	0455E	0458	0509	N18	W68	.938	15704	16.1	14D	-N		P	0458	40		
YUNN	21	0502	0507	0534	N21	W65	.923	15704	16.3	32	-N		C				
764 VORO	21	0304	0304	0305	N11	E07	.249	15712	21.7	1	-F		C	0304	36	.4	D Y5
765 YUNN	21	0604	0632	0707	N21	W66	.929	15704	16.3	63	?N		C		110		Y5
	IMP.1 NO 1 HITK CULG																
GRP70766	21	0730+8	0730 0754	0812	S25	W46	.767	15707	17.9	42	-N						
TEHR	21	0730E	0730U	0743D	S27	W46	.775	15707	17.9	13D	-N	1	C		64		FDE
YUNN	21	0738	0754	0808	S25	W46	.767	15707	17.9	30	-N		C				
CULG	21	0745E	0745E	0815	S23	W45	.750	15707	17.9	30D	-F		C	0745	70	1.1	
	21	1130	1145	NO FLARE PATROL													
	21	1210	1233	NO FLARE PATROL													
	21	1258	1312	NO FLARE PATROL													
767 RAMY	21	1312E	1314	1317	N10	E56	.838	15723	25.8	5D	-N	3	C		18		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	21	1413	1448	NO FLARE PATROL													
	21	0652	0705	NO FLARE PATROL													
	21	0755	0757	NO FLARE PATROL													
	21	0905	0907	NO FLARE PATROL													
768 RAMY	21	1451	1451	1501	N10	E55	.829	15723	25.7	10	-N	3	C		16		Y5
GRP70769	21	1645+1	1649+1	1732	N18	W71	.954	15704	16.4	47	1B				120		FU
RAMY	21	1645	1649	1722	N18	W71	.954	15704	16.4	37	-B	2	C		92		F
HOLL	21	1646	1650	1742	N19	W71	.954	15704	16.4	56	1B	3	C		152		U F
770 PALE	21	1858	1859	1906	S25	W53	.830	15707	17.8	8	-N	3	C		14		Y5
GRP70771	21	1905+2	1907+1	1912	N19	W72	.959	15704	16.4	7	-B				20		
RAMY	21	1905	1907	1914	N21	W72	.961	15704	16.4	9	-B	2	C		19		
PALE	21	1907	1908	1911	N19	W74	.968	15704	16.2	4	-B	3	C		29		
HOLL	21	1907	1908	1912	N19	W72	.959	15704	16.4	5	-B	3	C		24		
772 RAMY	21	1925	1927	1939	S23	W36	.655	15709	19.1	14	-N	2	C		36		Y5
773 CULG	21	2055	2106	2120	S22	W52	.814	15707	18.0	25	-F		C	2106	60	1.0	L Y5
GRP70774	21	2136+1	2139+0	2143	N19	W73	.964	15704	16.4	7	-B				30		F
HOLL	21	2136	2139	2143	N19	W73	.964	15704	16.4	7	-B	3	C		25		F
PALE	21	2137	2139	2142	N19	W73	.964	15704	16.4	5	-B	3	C		32		
775 CULG	21	2247	2302U	2331	S22	W42	.715	15709	18.8	44	-F		C	2302	50	.7	Y5
GRP70776	21	2347+8	2348+2	2355	N19	W90	1.000	15717	15.2	8	-F				40		
VORO	21	2347	2348	2353	N18	W90	1.000	15717	15.2	6	-F		C	2348	45		
CULG	21	2347	2350	2357	N20	W90	1.000	15717	15.2	10	-F		C	2350	30		
777 VORO	22	0104	0107	0117	N12	E02	.240	15712	22.2	13	-N		C	0107	134	1.4	EJ Y5
778 VORO	22	0138	0139	0145	N12	E50	.783	15723	25.8	7	-N		C	0139	63	1.0	EJ Y5
GRP70779	22	0300+3	0306+5	0322	N12	W01	.238	15712	22.0	22	-F				110	1.1	EJ
CULG	22	0300	0311	0333	N12	E00	.238	15712	22.1	33	-F		C	0311	80	.8	
VORO	22	0303	0306	0310	N12	W02	.240	15712	22.0	7	-N		C	0306	152	1.6	EJ
780 CULG	22	0342	0349	0357	N09	W04	.199	15712	21.9	15	-F		C	0349	20	.2	Y5
GRP70781	22	0357>9	0427+3	0502	N21	W77	.980	15704	16.4	65	-N						
CULG	22	0357	0430U	0451D	N22	W80	.989	15704	16.2	54D	1N		P	0430	70		
YUNN	22	0423	0427	0502	N20	W75	.973	15704	16.6	39	-N		C				
782 KHAR	22	1045		1100	N20	W85	.997	15704	16.1	15	-F		P	1052			D Y5
783 RAMY	22	1257	1308	1317	S23	W45	.749	15709	19.2	20	-B	3	C		84		F Y5
	22	1323	1326	NO FLARE PATROL													
	22	1327	1344	NO FLARE PATROL													
784 RAMY	22	1620	1620	1629	N24	W32	.648	15718	20.3	9	-N	2	C		53		F Y5
785 RAMY	22	1720	1720	1727	N24	W32	.648	15718	20.3	7	-N	2	C		22		F Y5
786 MCMA	22	1836	1840	1846	N28	E90	1.000	15731	29.5	10	-N		C	1840			DH Y5
GRP70787	22	2000>9	2000 2055	2102	N26	W35	.691	15718	20.2	62	-N						D
BIGB	22	2000E	2000	2107U	N26	W34	.682	15718	20.3	67D	-N		P	2000	65		
BIGB	22	2054	2055	2056	N26	W36	.701	15718	20.2	2	-N		C	2055	10		D
GRP70788	23	0502>9	0512+8	0527	S23	W58	.866	15709	18.9	25	1N				150	3.1	E
YUNN	23	0502	0512	0530	S23	W56	.850	15709	19.0	28	2N		C		361		
PEKG	23	0510	0515	0524	S23	W57	.858	15709	18.9	14	1N		P		168	160.0	E
TEHR	23	0514	0520	0524	S23	W61	.888	15709	18.6	10	-B	1	C		127		DE
MANI	23	0516E	0516U	0625	S26	W60	.886	15709	18.7	69D	-N	3	C		20		
	23	1402	1414	NO FLARE PATROL													
	23	1417	1427	NO FLARE PATROL													
	23	0345	0400	NO FLARE PATROL													
789 RAMY	23	1550	1551	1603	N11	E28	.510	15723	25.8	13	-B	3	C		32		F Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq Deg.		
GRP70790	23	1626+2	1628+1	1638	N27	E73	.969	15731	29.2	12	-N						E	
MCMA	23	1626	1628	1643	N27	E75	.977	15731	29.3	17	-N		C	1628			E	
RAMY	23	1628	1629	1633	N28	E72	.966	15731	29.1	5	-N	3	C		12			
791 BIGB	23	1818	1831	1846	N28	E77	.983	15731	29.5	28	-N		C	1831	15		E	Y5
792 BIGB	23	1903	1938	1945	N16	W16	.405	15712	22.6	42	-N	*	C	1938	40		EG	Y5
GRP70793	23	1903+2	1911+6	1924	N17	W58	.868	15727	19.4	21	-N						F	
RAMY	23	1903	1917	1924	N17	W59	.876	15727	19.4	21	-N	3	C		84		F	
HOLL	23	1905	1911	1924	N17	W58	.868	15727	19.4	19	-N	3	C		21			
794 RAMY	23	1932	1935	1946	N17	W59	.876	15727	19.4	14	-N	3	C		78		F	Y5
795 BIGB	23	1957	2006	2008	N12	E72	.955	15726	29.2	11	-N		P	2006	10		D	Y5
GRP70796	23	2136	2138	2143	S17	E90	1.000	15733	30.6	7	1N							
BIGB	23	2136	2141	2138	S16	E90	1.000	15733	30.7	2	1N		C	2141	60			
CULG	23	2140E	2140E	2145	S18	E90	1.000	15733	30.7	5D	-F		P	2140	40		B	
797 BIGB	23	2137	2158	2206	N12	E72	.955	15726	29.3	29	-N		C	2158	40			Y5
798 BIGB	23	2221	2223	2232	N17	W64	.912	15727	19.1	11	-N		C	2223	15		EG	Y5
799 BIGB	23	2229	2230	2237	S14	E90	1.000	15733	30.7	8	?N		C	2230	65			Y5
	IMP.1 NO ‡ HOLL			CULG	PALE													
800 CULG	23	2249	2301	2310	S21	W70	.944	15709	18.7	21	-F		C	2301	30			Y5
801 BIGB	23	2305	2318	2329	N11	E25	.470	15723	25.8	24	-N		C	2318	40			Y5
802 BIGB	23	2307	2310	2315	S15	E90	1.000	15733	30.7	8	-N		C	2310	15			Y5
803 BIGB	23	2321	2339	2342	N12	E69	.939	15726	29.1	21	-N		C	2339	50			Y5
804 CULG	24	0006	0009	0013	S18	E90	1.000	15733	30.8	7	-N		C	0009	20			Y5
805 CULG	24	0245	0249	0255	S14	E52	.796	15725	28.0	10	-F		C	0249	30	.5	G	Y5
806 VORO	24	0352	0354	0400D	N16	W65	.918	15727	19.3	8D	-F		C	0354	36		D	Y5
807 CULG	24	0523E	0530	0540	N18	E11	.387	15722	25.0	17D	-N		C	0530	40	.4		Y5
808 KHAR	24	0955E		1005D	S15	E85	.996	15733	30.8	10D	-F		P	1002			D	Y5
	24	1045	1115	NO FLARE PATROL														
	24	1120	1138	NO FLARE PATROL														
	24	1225	1231	NO FLARE PATROL														
	24	0400	0420	NO FLARE PATROL														
	24	0545	0547	NO FLARE PATROL														
	24	0920	0950	NO FLARE PATROL														
	24	0028	0038	NO FLARE PATROL														
	24	0050	0126	NO FLARE PATROL														
809 BIGB	24	1819	1822	1831	S31	E86	.997	15734	31.2	12	-N		C	1822	20			Y5
810 BIGB	24	1819	1825	1835	S09	E80	.984	15733	30.8	16	-N	*	C	1825	15		D	Y5
811 PALE	24	2043	2044	2054	N19	E02	.360	15722	25.0	11	-N	3	C		37		DE	Y5
812 BIGB	24	2114	2205	2223	N12	E54	.824	15726	28.9	69	-N		C	2205	10		D	Y5
813 BIGB	24	2207	2227	2239	S20	E90	1.000	15733	31.7	32	?N		C	2227	130			Y5
	IMP.1 NO ‡ HOLL																	
GRP70814	24	2315	2318 2321	2330	N09	E09	.245	15723	25.6	15	-N							
BIGB	24	2315	2318	2322	N11	E09	.272	15723	25.6	7	-N		C	2318	50			
BIGB	24	2319	2321	2330	N08	E09	.233	15723	25.6	11	-N		C	2321	30			
815 VORO	25	0146		0149	N12	E07	.272	15723	25.6	3	-F		C	0146	90	.9	EH	Y5
816 VORO	25	0306	0307	0312	N13	E49	.776	15726	28.8	6	-F		C	0307	72	1.1	DJ	Y5
817 TEHR	25	0453	0456	0508D	N12	E50	.784	15726	29.0	15D	-B	1	C		95		FDE	Y5
818 YUNN	25	0547	0605	0650	S30	E68	.939	15734	30.3	63	1N		C		157			Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	25	1052	1308	NO FLARE PATROL													
	25	1324	1409	NO FLARE PATROL													
GRP70819	25	2022+0	2022+0	2026	S16	E69	.935	15733	31.0	4	-N				30		
PALE	25	2022	2022	2024	S15	E71	.946	15733	31.2	2	-N	3	C		17		DE
HOLL	25	2022	2022	2027	S17	E68	.929	15733	30.9	5	-N	3	C		38		
GRP70820	25	2131+2	2136+0	2154	S29	E64	.916	15734	30.7	23	1B				120		H
HOLL	25	2131	2136	2152	S30	E62	.905	15734	30.5	21	-B	3	C		76		
PALE	25	2133	2136	2155D	S28	E67	.932	15734	30.9	22D	1B	3	C		171		H
	25	2251	2255	NO FLARE PATROL													
	25	0508	0514	NO FLARE PATROL													
821 MANI	26	0327E	0327U	0334	S15	E60	.870	15733	30.6	7D	-B	3	C		100		F Y5
822 MITK	26	0538		0547D	S17	E64	.903	15733	31.0	9D	?F		C	0546	180	4.1	E Y5
	IMP.1 NO 1 MANI																
GRP70823	26	1108+1	1108+2	1113	S16	E54	.818	15733	30.5	5	-F						D
KANZ	26	1108	1108	1112	S16	E55	.827	15733	30.6	4	-N	2					D
HTPR	26	1109	1110	1113	S17	E54	.819	15733	30.5	4	-F		C	1110	30	.5	
824 HTPR	26	1426	1428	1438	S19	E52	.804	15733	30.5	12	-F		C	1428	40	.6	Y5
825 HTPR	26	1438	1441	1505	S15	E57	.844	15733	30.9	27	-F		C	1441	20	.4	Y5
GRP70826	26	1828	1831	1933	S16	E61	.879	15733	31.3	65	-N						
			1901														
BIGB	26	1828	1831	1933	S16	E61	.879	15733	31.3	65	-N		C	1831	10		D
BIGB	26	1859	1901	1902	S16	E62	.887	15733	31.4	3	-N		C	1901	10		D
827 BIGB	26	1945	1951	1957	S17	E53	.810	15733	30.8	12	-N		C	1951	50		Y5
GRP70828	26	1958	2007+3	2038	S15	E56	.835	15733	31.0	40	-N						E
			2022														
BIGB	26	1958	2007	2011	S17	E55	.829	15733	31.0	13	-N		C	2007	10		D
BIGB	26	2004	2022	2049	S14	E57	.843	15733	31.1	45	-N		C	2022	50		
BIGB	26	2006	2010	2026	S14	E57	.843	15733	31.1	20	-N		P	2010	40		E
829 BIGB	26	2028	2031U	2031D	S14	E60	.869	15733	31.4	3D	-N		P	2031	30		Y5
830 BIGB	26	2300	2304	2315	S16	E54	.818	15733	31.0	15	-N		C	2304	50		D Y5
831 BIGB	26	2301	2307	2346	S24	E54	.833	15734	31.0	45	-N		C	2307	60		Y5
	27	1014	1025	NO FLARE PATROL													
	27	1030	1100	NO FLARE PATROL													
	27	1110	1132	NO FLARE PATROL													
	27	0448	0523	NO FLARE PATROL													
	27	0537	0558	NO FLARE PATROL													
	27	0611	0700	NO FLARE PATROL													
	27	0707	0755	NO FLARE PATROL													
	27	0815	0901	NO FLARE PATROL													
832 RAMY	27	1236	1237	1246	S18	E51	.792	15733	31.4	10	-N	3	C		22		Y5
833 RAMY	27	1551	1551	1554	S15	E41	.674	15733	30.7	3	-N	3	C		22		Y5
GRP70834	27	1626+1	1631+7	1804	S13	E43	.693	15733	30.9	98	2B						U
RAMY	27	1626	1637	1813	S13	E41	.669	15733	30.8	107	3B	3	C		1700		U F
BIGB	27	1626	1638	1755	S12	E43	.691	15733	30.9	89	2N		C	1638	650		
HOLL	27	1627	1631	1634D	S16	E43	.701	15733	30.9	7D	2B	3	C		393		UDE
835 RAMY	27	1629	1633	1642	S18	E71	.947	15733	2.0	13	-B	3	C		51		F Y5
GRP70836	27	1759+0	1800+1	1803	S22	W46	.753	15738	24.3	4	-N				20	.3	
PALE	27	1759	1801	1802	S23	W46	.756	15738	24.3	3	-N	3	C		17		DE
RAMY	27	1759	1800	1804	S22	W47	.763	15738	24.2	5	-N	3	C		19		
837 BIGB	27	2003	2017	2041	S32	E65	.925	15739	1.7	38	-N		C	2017	20		Y5
838 BIGB	27	2116	2123	2127	S27	E39	.705	15734	30.8	11	-N		C	2123	10		D Y5
839 BIGB	27	2148	2212	2220	S32	E62	.908	15739	1.6	32	-N		C	2212	10		Y5
840 BIGB	27	2307	2311	2320	S32	E62	.908	15739	1.6	13	-N		C	2311	15		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill of Disk	CORR AREA Sq Deg.		
841 BIGB	27	2340	2341	2344	S34	E90	1.000	15740	3.7	4	-N		C	2341	15			Y5
842 VORO	28	0012	0017	0036	S28	W20	.528	15735	26.5	24	-F		C	0017	99	1.1	EJ	Y5
GRP70843	28	0045+1	0047+3	0109	S14	E39	.645	15733	31.0	24	-B						EJ	
VORO	28	0045	0050	0106	S13	E38	.630	15733	30.9	21	1N		C	0050	206	2.6	EJ	
PALE	28	0046	0047	0111D	S15	E41	.673	15733	31.1	25D	-B	3	C		41		DE	
GRP70844	28	0432	0443+7	0503	N13	E09	.307	15726	28.9	31	1N				250	2.6		
YUNN	28	0432	0450	0510	N11	E09	.279	15726	28.9	38	1N		C		361	192.0		
CULG	28	0438E	0443U	0452D	N13	E09	.307	15726	28.9	14D	-N		P	0443	180	1.9	F	
PEKG	28	0444	0448	0456	N13	E09	.307	15726	28.9	12	1F		P		210	111.0	E	
845 HTPR	28	0737E		0856	S14	E32	.554	15733	30.7	79D	-F		C	0738	40	.5	E	Y5
846 HTPR	28	1033	1035	1046	S32	E54	.853	15739	1.5	13	-N		C	1035	20	.3		Y5
847 HTPR	28	1055	1059	1107	N18	E12	.401	15732	29.4	12	-F		C	1059	40	.4	E	Y5
848 HTPR	28	1106	1109	1113	S32	E53	.846	15739	1.4	7	-F		C	1109	30	.5		Y5
849 HTPR	28	1116		1128D	S30	E27	.610	15734	30.5	12D	-F		C	1121	20	.2		Y5
GRP70850	28	1152+1	1154+0	1204	S35	E88	.999	15740	4.1	12	-B						A	
HTPR	28	1152	1154	1203	S35	E90	1.000	15740	4.2	11	1B		C	1154	100		A	
RAMY	28	1153	1154	1204	S35	E86	.997	15740	3.9	11	-N	2	C					
851 HTPR	28	1235	1238	1243	S30	E52	.832	15739	1.4	8	-N		C	1238	30	.5		Y5
852 RAMY	28	1328	1328	1350	N11	E04	.243	15726	28.9	22	-N	3	C		23			Y5
GRP70853	28	1356+5	1359+2	1407	S15	E30	.532	15733	30.8	11	-N						E	
HTPR	28	1356	1359	1410	S15	E28	.505	15733	30.7	14	-N		C	1359	60	.6	E	
RAMY	28	1401	1401	1404	S15	E33	.571	15733	31.1	3	-N	3	C		24			
	28	1458	1513	NO FLARE PATROL														
854 RAMY	28	1501	1534	1625	N11	E03	.239	15726	28.9	84	-B	2	C		53			Y5
855 MCMA	28	1532E	1542	1551	S29	W90	1.000	15714	21.9	19D	-N		C	1542			E	Y5
	28	1607	1615	NO FLARE PATROL														
856 RAMY	28	1626	1629	1649	N11	E03	.239	15726	28.9	23	-N	2	C		39			Y5
857 RAMY	28	1629	1632	1634	S32	E50	.823	15739	1.4	5	-F	2	C		18			Y5
858 RAMY	28	1637	1638	1643	S32	E50	.823	15739	1.4	6	-F	2	C		32			Y5
859 MCMA	28	1703		1708D	S13	E30	.522	15733	31.0	5D	-F		P	1707	80	1.0	E	Y5
860 RAMY	28	1744	1747	1750	S22	W62	.892	15738	24.1	6	-N	2	C		14			Y5
	28	1749	1751	NO FLARE PATROL														
	28	1752	1830	NO FLARE PATROL														
861 RAMY	28	1836	1836	1841	N11	E02	.236	15726	28.9	5	-N	2	C		33			Y5
	28	1846	1856	NO FLARE PATROL														
	28	1913	1917	NO FLARE PATROL														
862 RAMY	28	1920	1925	1928	N11	E01	.234	15726	28.9	8	-N	2	C		31			Y5
863 RAMY	28	2003	2003	2010	N11	E01	.234	15726	28.9	7	-N	2	C		23			Y5
GRP70864	28	2024+0	2030+4	2048	S33	E47	.804	15739	1.4	24	-N				45	.8		
RAMY	28	2024	2034	2042D	S32	E47	.799	15739	1.4	18D	-B	2	C		50			
CULG	28	2024	2030	2048	S34	E48	.816	15739	1.4	24	-F		C	2030	40	.7		
865 CULG	28	2105	2109U	2112D	S31	E32	.663	15734	31.3	7D	-F		P	2109	30	.4		Y5
	28	2112	2120	NO FLARE PATROL														
	28	0335	0438	NO FLARE PATROL														
	28	0452	0514	NO FLARE PATROL														
	28	0517	0522	NO FLARE PATROL														
	28	0540	0615	NO FLARE PATROL														

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONG.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
866 CULG	28	2128	2132	2151	S20	E15	.388	15729	30.0	23	-F		C	2132	40	.4	Y5
GRP70867	28	2134	2141 2157	2210	S21	W66	.919	15738	23.9	36	-N						
CULG	28	2134	2141	2210	S20	W69	.936	15738	23.7	36	-N		C	2141	40		
PALE	28	2154E	2157U	2158D	S23	W64	.907	15738	24.1	40	-B	3	C		32		DE
868 CULG	28	2211	2214	2222	N23	E14	.484	15732	30.0	11	-F		C	2214	20	.2	G Y5
869 CULG	28	2244	2247	2254	S20	W70	.942	15738	23.7	10	-N		C	2247	40		Y5
870 CULG	28	2246	2248	2257	S27	W90	1.000	15714	22.2	11	-N		C	2248	20		Y5
871 CULG	28	2322	2330	2341	N36	E07	.630	15730	29.5	19	-F		C	2330	40	.5	Y5
872 VORO	29	0003	0006	0010	N10	W03	.224	15726	28.8	7	-N		C	000E	179	1.8	OHJ Y5
873 VORO	29	0041	0043	0047	S25	W70	.944	15738	23.8	6	-F		C	0043	54		EJ Y5
874 VORO	29	0202	0203	0206	S35	E88	.998	15740	4.7	4	-N		C	0203	72		DJ Y5
875 VORO	29	0204	0206	0212	S25	W70	.944	15738	23.8	8	-F		C	0210	36		D Y5
GRP70876	29	0240+3	0246+4	0302	N11	W05	.250	15726	28.7	22	-N						DJ
YUNN	29	0240	0250	0305	N11	W04	.245	15726	28.8	25	-N		C				
VORO	29	0243	0246	0258	N11	W06	.257	15726	28.7	15	-N		C	0246	90	.9	DJ
GRP70877	29	0305+6	0309+4	0322	S19	E13	.354	15729	30.1	17	-F						E
YUNN	29	0305	0309	0325	S19	E13	.354	15729	30.1	20	-N		C				
VORO	29	0311	0313	0318	S19	E13	.354	15729	30.1	7	-F		C	0313	54	.5	E
878 CULG	29	0516	0531	0540	S22	W63	.899	15738	24.5	24	-F		C	0531	40		K Y5
879 CULG	29	0612	0617	0635	S35	E44	.789	15739	1.6	23	-N		C	0617	70	1.1	Y5
	29	1230	1240	NO FLARE PATROL													
	29	1250	1311	NO FLARE PATROL													
880 RANY	29	1350	1352	1357	S22	W73	.958	15738	24.1	7	-N	2	C		33		Y5
	29	1600	1604	NO FLARE PATROL													
881 HUAN	29	1615		1620	S34	E37	.727	15739	1.5	5	-F	1	C				Y5
	29	1649	1652	NO FLARE PATROL													
	29	1840	1843	NO FLARE PATROL													
	29	1846	1848	NO FLARE PATROL													
	29	1903	1910	NO FLARE PATROL													
	29	1928	1958	NO FLARE PATROL													
882 BIGB	29	2011	2017	2020	S12	E73	.955	15741	4.3	9	-N		C	2017	40		Y5
883 BIGB	29	2037	2042	2046	N90	E15	1.001	0	31.0	9	-N		C	2042	20		Y5
884 BIGB	29	2104	2107	2111	N12	W16	.368	15726	28.7	7	-N		C	2107	30		Y5
885 BIGB	29	2154	2208	2215	S17	E80	.984	15741	4.9	21	-N		C	2208	20		Y5
GRP70886	29	2233+3	2240+0	2253	S12	E68	.927	15741	4.0	20	-N				35		
CULG	29	2233	2240	2259	S13	E68	.927	15741	4.0	26	-N		C	2240	40		
BIGB	29	2236	2240	2246	S11	E69	.933	15741	4.1	10	-N		C	2240	25		
	29	2409	0008	NO FLARE PATROL													
	29	0457	0505	NO FLARE PATROL													
887 VORO	30	0034	0036	0041	N11	W29	.529	15726	27.8	7	-F		C	003E	18	.2	D Y5
888 CULG	30	0050	0052	0059D	S20	E75	.966	15746	4.7	9D	-F		P	0052	40		Y5
889 YUNN	30	0321	0329	0440	S12	E63	.891	15741	3.9	79	?B		C		126		Y5
	IMP.1 NO : MITK VORO																
GRP70890	30	0541+8	0600+8	0652	S20	E66	.917	15746	4.2	71	2B				380		EU
YUNN	30	0541	0600	0706	S20	E66	.917	15746	4.2	85	3B		C		472		
MITK	30	0546	0602	0641	S21	E75	.966	15746	4.9	55	1B		C	0602	180		E
MANI	30	0549	0607	0620	S20	E67	.924	15746	4.3	31	2B	2	C		300		U
TEHR	30	0604E	0608U	0702	S12	E63	.891	15746	4.0	58D	3B	2	C		732		U

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR. DAY	MIN.		COND	TYPE	TIME UT	MEAS AREA Mill of Disk	CORR AREA Sq Deg		
891 YUNN	30	0735	0746	0815	S29	E07	.455	15734	30.8	40	?N		C		188	102.0		Y5
	IMP.1 NO : MANI																	
892 KANZ	30	1037	1041	1044	S11	E61	.875	15741	4.0	7	-F	1						Y5
893 KANZ	30	1051	1051	1104	S29	E05	.449	15734	30.8	13	-F	1						Y5
894 RAMY	30	1200	1202	1220	S32	E27	.626	15739	1.5	20	-N	3	C		25			Y5
895 RAMY	30	1216	1220	1234	N13	E74	.966	15745	5.1	18	-N	3	C		16			Y5
896 HTPR	30	1232	1233	1235	S20	E18	.417	15733	31.9	3	-F		C	1233	10	.1		Y5
GRP70897	30	1329+3	1332+3	1342	S33	E01	.504	15734	30.6	13	-N						E	
HTPR	30	1329	1335	1345	S34	E01	.519	15734	30.6	16	-N		C	1335	130	1.6	E	
KANZ	30	1331	1334	1341	S33	E01	.504	15734	30.6	10	-F	1						
RAMY	30	1332	1332	1342	S31	E04	.477	15734	30.9	10	-N	3	C		28			
898 RAMY	30	1507	1507	1511	N11	W23	.449	15726	28.9	4	-N	3	C		32			Y5
899 RAMY	30	1609	1611	1627	N11	W24	.463	15726	28.9	18	-B	3	C		80			Y5
900 RAMY	30	1725	1725	1728	S22	E19	.449	15733	1.2	3	-N	3	C		20			Y5
901 RAMY	30	1833	1847	1855	S22	E19	.449	15733	1.2	22	-N	3	C		33			Y5
	30	1855	1856	NO FLARE PATROL														
902 BIGB	30	1913	1914	1918	S18	E11	.320	15733	31.6	5	-N		C	1914	15			Y5
903 CULG	30	2054	2101	2110	S25	E01	.379	15734	30.9	16	-F		C	2101	30	.3		Y5
904 BIGB	30	2123	2132	2137	S12	E20	.372	0	1.4	14	-N		C	2132	10			Y5
GRP70905	30	2250>9	2306 2314	2328	S12	E54	.812	15741	4.0	38	-N							
CULG	30	2250	2314	2334	S13	E54	.813	15741	4.0	44	1N		C	2314	120	2.0		
PALE	30	2305	2306	2321	S11	E54	.811	15741	4.0	16	-N	2	C		66		DE	
GRP70906	30	2324+8	2330+3	2344	S22	E16	.419	15733	1.2	20	-N							
CULG	30	2324	2330	2351	S24	E17	.452	15733	1.2	27	-N		C	2330	100	1.1		
PALE	30	2332	2333	2336	S21	E15	.397	15733	1.1	4	-N	2	C		28		DE	
907 VORO	30	2346E		0100	S26	E01	.395	15734	31.1	74D	?F		C	2358	269	2.9	BEJ	Y5
	IMP.1 NO : PALE CULG MITK																	
908 VORO	31	0146	0148	0151	N13	E68	.935	15745	5.2	5	-F		C	0148	27		D	Y5
GRP70909	31	0152+4	0156+3	0205	N11	W31	.556	15726	28.8	13	-F				40	.5	DJ	
CULG	31	0152	0159	0207	N12	W32	.575	15726	28.7	15	-F		C	0159	40	.5		
VORO	31	0156	0156	0203	N11	W31	.556	15726	28.8	7	-N		C	0156	36	.4	DJ	
GRP70910	31	0302+8	0313+2	0425	S20	E10	.337	15733	31.9	83	1N				340	3.7	EJL	
YUNN	31	0302	0314	0425	S23	E13	.403	15733	1.1	83	2B		C		472	252.0		
CULG	31	0308	0315	0436	S20	E09	.330	15733	31.8	88	1B		C	0315	230	2.4	FL	
VORO	31	0309	0314	0340D	S19	E11	.332	15733	1.0	31D	1N		C	0314	349	3.7	EJ	
MITK	31	0310	0313	0346	S20	E10	.337	15733	31.9	36	1N		C	0313	320	3.5	E	
911 CULG	31	0450	0456	0527	N13	E68	.935	15745	5.3	37	-F		C	0456	40			Y5
912 CULG	31	0451	0457	0506	S12	E51	.780	15741	4.0	15	-F		C	0457	30	.5		Y5
913 CULG	31	0540	0551	0626	S15	W06	.234	15733	30.8	46	-F		C	0551	40	.4	T	Y5
914 CULG	31	0714	0722	0737	S13	E50	.771	15741	4.1	23	-N		C	0722	30	.5		Y5
915 CULG	31	0734	0744U	0744	N13	E65	.916	15745	5.2	10	-F		P	0744	60	150.0		Y5
916 YUNN	31	0751	0757	0810	S32	E14	.530	15739	1.4	19	-N		C					Y5
917 TEHR	31	0802	0805	0812	N13	E64	.910	15745	5.1	10	-B	2	C		95			Y5
918 YUNN	31	0836	0843	0857	S23	E10	.380	15733	1.1	21	-N		C					Y5
919 YUNN	31	0903	0910	0937	S23	E10	.380	15733	1.1	34	-N		C					Y5
	31	1208	1214	NO FLARE PATROL														

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Misc
Dec 78

Hα SOLAR FLARES

DECEMBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LNGT. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
920 RAMY	31	1213E	1214	1245	S32	E14	.530	15739	1.6	32D	-N	2	C		74		U F Y5
	31	1310	1507	NO FLARE PATROL													
921 RAMY	31	1316	1316	1321	N12	E60	.878	15745	5.1	5	-N	3	C		23		Y5
922 RAMY	31	1446	1447	1507	S12	E45	.713	15741	4.0	21	-N	3	C		28		Y5
	31	1543	1602	NO FLARE PATROL													
923 HUAN	31	1611		1613	S23	E06	.358	15733	1.1	2	-F	1	C				E Y5
	31	1613	1628	NO FLARE PATROL													
924 RAMY	31	1645	1650	1657	S23	E06	.358	15733	1.1	12	-N	[illegible]	C		45		Y5
	31	1711	1756	NO FLARE PATROL													
925 RAMY	31	1726	1727	1741	S23	E06	.358	15733	1.2	15	-N	2	C		80		Y5
GRP70926	31	1905+1	1906+0	1910	N14	E61	.889	15745	5.4	5	-N						
BIGB	31	1905	1906	1910	N16	E65	.920	15745	5.7	5	-N		C	1906	60		
RAMY	31	1906	1906	1909	N12	E57	.853	15745	5.1	3	-B	2	C		19		
	31	1912	1930	NO FLARE PATROL													
927 BIGB	31	2030	2035	2040	S22	W02	.329	15733	31.7	10	-N		C	2035	15		Y5
	31	2108	2117	NO FLARE PATROL													
928 CULG	31	2117	2117	2133	S33	W06	.510	15734	31.4	16	-F		C	2117	30	.3	Y5
GRP70929	31	2158+1	2202+1	2217	S36	E45	.799	15740	4.3	19	-N				70	1.2	F
CULG	31	2158	2203	2223	S36	E45	.799	15740	4.3	25	-N		C	2203	100	1.7	F
BIGB	31	2159	2202	2211	S36	E46	.807	15740	4.4	12	-N		C	2202	50		
	31	2313	2320	NO FLARE PATROL													
930 CULG	31	2321	2336	2358	S18	W01	.262	15733	31.9	37			C	2336	40	.4	Y5
931 BIGB	31	2323	2325	2329	N16	E62	.899	15745	5.6	6	-N		C	2325	10		Y5

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

NOVEMBER 1978

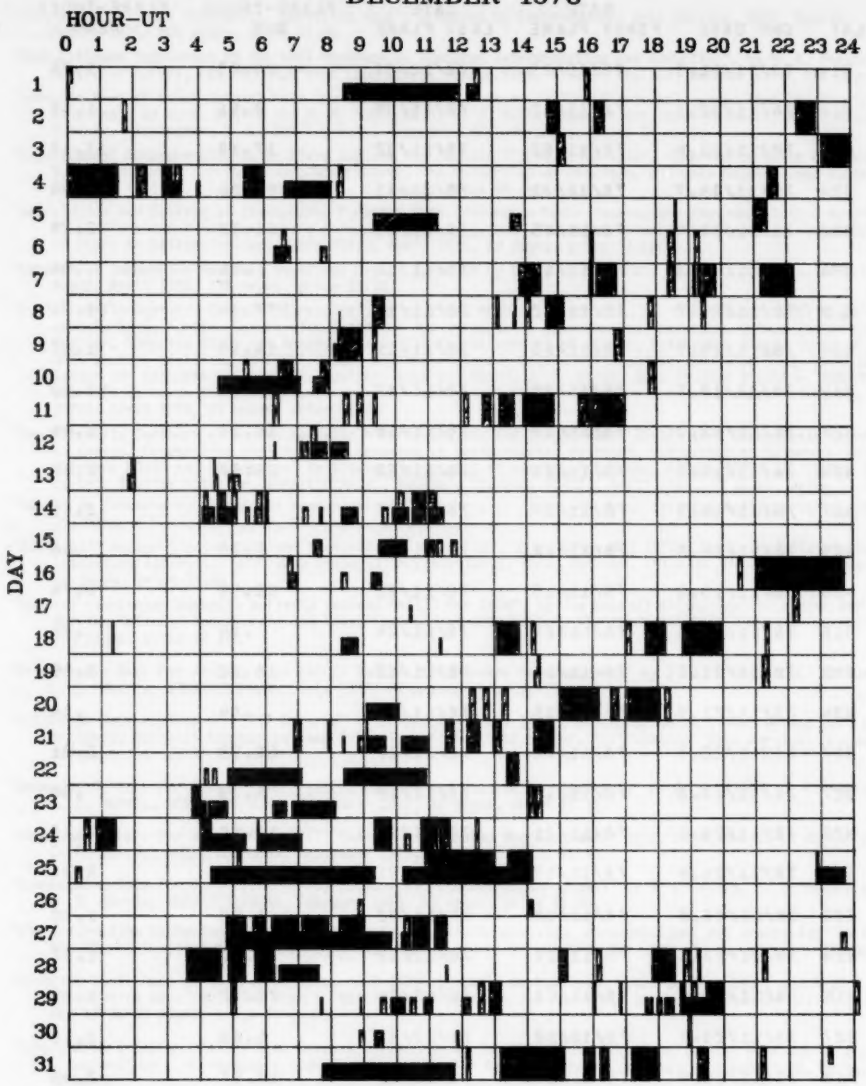
DAILY FLARE INDICES
Includes all Flares

Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
781201	37.63	23.6	781212	305.33	23.8	781223	35.73	23.4
781202	98.39	22.7	781213	891.15	23.9	781224	24.70	21.5
781203	23.24	21.4	781214	153.81	22.5	781225	22.52	21.0
781204	51.68	22.2	781215	105.66	24.0	781226	15.83	24.0
781205	59.85	23.6	781216	114.70	21.1	781227	283.73	19.6
781206	64.77	23.5	781217	183.27	23.8	781228	122.36	20.5
781207	132.16	20.9	781218	58.36	21.1	781229	33.26	22.7
781208	51.62	22.6	781219	14.00	23.7	781230	141.66	24.0
781209	84.38	23.0	781220	29.97	20.9	781231	131.51	20.1
781210	480.32	23.0	781221	31.93	22.3			
781211	433.31	20.3	781222	31.93	23.7			

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

DECEMBER 1978



Observatories included in total patrol:

Abastumani	Herstmonceux	Kharkov	Monte Mario	Tehran
Athenes	Holloman	Locarno	Palehua	Upice
Big Bear	Huancayo	Lvov	Peking	Voroshilov
Bucharest	Istanboul	Manila	Purple Mt.	Wendelstein
Culgoora	Kandilli	McMath-Hulbert	Ramey	Yunnan
Haute Provence	Kanzelhohe	Mitaka	Tashkent	Zürich

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

NOVEMBER 1978

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15631	S14	78/11/01.9	78/10/25	78/11/07	24.63	1.76	8
15630	N16	78/11/02.1	78/11/02	78/11/05	7.51	1.88	3
15629	N30	78/11/02.6	78/11/02	78/11/02	17.10	17.10	1
15635	S24	78/11/04.7	78/10/31	78/11/11	184.86	15.40	55
15645	S22	78/11/06.4	78/11/05	78/11/09	11.02	2.20	5
15656	N24	78/11/07.3	78/11/13	78/11/13	.86	.86	1
15641	S 9	78/11/07.7	78/11/02	78/11/14	277.64	21.36	79
15642	S22	78/11/09.7	78/11/03	78/11/11	14.99	1.67	3
15643	N19	78/11/10.5	78/11/05	78/11/17	605.56	46.58	79
15647	S23	78/11/13.3	78/11/07	78/11/16	10.38	1.04	3
15651	N24	78/11/14.5	78/11/11	78/11/20	26.57	2.66	12
15671	S17	78/11/14.9	78/11/17	78/11/17	3.43	3.43	1
15654	S19	78/11/15.8	78/11/11	78/11/18	5.29	.66	2
15653	N38	78/11/16.0	78/11/19	78/11/22	22.98	5.74	25
15662	N16	78/11/18.5	78/11/24	78/11/24	.84	.84	1
15668	S22	78/11/21.2	78/11/16	78/11/20	18.23	3.65	5
15667	N34	78/11/21.9	78/11/15	78/11/15	.84	.84	1
15669	S17	78/11/22.4	78/11/16	78/11/27	60.08	5.01	19
15670	S27	78/11/23.3	78/11/16	78/11/25	6.39	.64	5
15672	N25	78/11/24.2	78/11/21	78/11/21	17.10	17.10	1
15673	N15	78/11/24.5	78/11/19	78/12/01	69.44	5.34	34
15677	S20	78/11/26.3	78/11/22	78/11/22	1.90	1.90	1
15678	S14	78/11/28.3	78/11/28	78/12/02	6.10	1.22	2
15679	N15	78/11/28.5	78/11/22	78/12/04	25.72	1.98	11
15692	S27	78/11/29.3	78/12/02	78/12/03	6.80	3.40	4
15681	N10	78/11/29.9	78/11/25	78/12/01	19.97	2.85	6
15690	N14	78/11/30.6	78/11/24	78/11/27	5.65	1.41	4

UAG-48A "Synoptic Observations of the Solar Corona during Carrington Rotations 1580-1596 (11 October 1971 - 15 January 1973)", [Reissue with quality images] by R. A. Howard, M. J. Koomen, D. J. Michels, R. Tousey, C. R. Detwiler, D. E. Roberts, R. T. Seal and J. D. Whitney, E. O. Hulbert Center for Space Research, NRL, Washington, D. C. 20375 and R. T. and S. F. Hansen, C. J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, Colorado 80303, February 1976, 200 pages, price $4.27.

UAG-49 "Catalog of Standard Geomagneti Variation Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado, August 1975, 125 pages, price $1.85.

UAG-50 "High-Latitude Supplement to the URSI Handbook on Ionogram Interpretation and Reduction", by W. R. Piggott, British Antarctic Survey, c/o SRC, Appleton Laboratory, Ditton Park, Slough, England, October 1975, 292 pages, price $4.00.

UAG-51 "Synoptic Maps of Solar Coronal Hole Boundaries Derived from He II 304Å Spectroheliograms from the Manned Skylab Missions", by J. D. Bohlin and D. M. Rubenstein, E. O. Hulbert Center for Space Research, Naval Research Laboratory, Washington, D. C. 20375 U.S.A., November 1975, 30 pages, price 54 cents.

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UAG-53 "Description and Catalog of Ionospheric F-Region Data, Jicamarca Radar Observatory (November 1966 - April 1969)", by W. L. Clark and T. E. Van Zandt, Aeronomy Laboratory, NOAA, Boulder, Colorado 80302 and J. P. McClure, University of Texas at Dallas, Dallas, Texas 75230, April 1976, 10 pages, price 33 cents.

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UAG-55 "Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, H. W. Kroehl, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado 80303, J. H. Allen, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, April 1976, 91 pages, price $1.60.

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UAG-57 "Manual on Ionospheric Absorption Measurements", edited by K. Rawer, Institut für Physikalische Weltraumforschung, Freiburg, G.F.R., June 1976, 202 pages, price $4.27.

UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price $1.04.

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UAG-65 "The Information Explosion and Its Consequences for Data Acquisition, Documentation, and Processing" by G. K. Hartmann, Max-Planck-Institut für Aeronomie, D-3411 Katlenburg-Lindau 3, GFR, May 1978, 36 pages, price 75 cents.

UAG-66 "Synoptic Radio Maps of the Sun at 3.3mm 1970-1973" by Earle B. Mayfield, Space Science Lab., and Fred I. Shimabukuro Electronics Res. Lab., The Ivan A. Getting Laboratories, The Aerospace Corp., El Segundo, California 90245, May 1978, 30 pages, price 75 cents.

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UAG-72 "Energy Release in Solar Flares, Proceedings of the Workshop on Energy Release in Flares, 26 February-1 March 1979, Cambridge, Massachusetts, U.S.A.", edited by David M. Rust, American Science and Engineering, Inc., Cambridge, MA and A. Gordon Emslie, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, July 1979, 68 pages, price $1.50.

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